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# Gleanings in Bee Culture



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### THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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M'ng Editor

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signifies highest quality.

Our 1920 output over 150,000 pounds.

Beeswax wanted; For cash, or in exchange for foundation or bee supplies. Prices on request.

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A limited number of orders for spring delivery will be accepted at the following prices:

Quantity.	1	6	12	24
Untested .....	\$2.00	\$11.40	\$21.60	\$40.80
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## HONEY MARKETS

There is not much new to report, except that there is hope that the bottom has been reached, and that a slight upward trend has been started in harmony with the general improved economic conditions the country over. Producers are urged to sell their crops locally; and to that end it may be advisable to use liberal advertising space in local papers. Generally speaking, it is not a good time now to send honey in large lots to the big markets, if one can hold it till conditions are better.

### U. S. Government Market Reports.

SHIPPING POINT INFORMATION, JAN. 15.

LOS ANGELES, CALIF.—Wire inquiry light, demand slightly better, movement slow, market unsettled, prices lower. Very few sales are being made, and an uncertain feeling is prevalent as to whether still further declines may be experienced. Carloads f. o. b. usual terms, per lb., white orange blossom 16-17c, white sage 14-16c, light amber sage 11-13c, light amber alfalfa 9-10c. Beeswax in less than car lots, 35-37c.

INTERMOUNTAIN REGION (COLORADO AND IDAHO).—According to reports from reliable sources, very light shipments are being made, of either extracted or comb. Supplies of comb are now very light, and practically no large sales of either type of honey or of beeswax are being made. Carlot buyers are reported to have largely temporarily withdrawn from the market, due to the present financial stringency, their lack of confidence in the current market situation, and their desire to enter the new year with small stocks on hand. F. o. b. usual term nominal quotations range 16c per lb. in carlots for extracted, \$7.25 for fancy comb, \$7.00 for No. 1, and \$6.00 for No. 2 comb. It is said that some repacking of extracted stock into 5 and 10 lb. pails is being done for sale direct to the consumer or retail grocer at around 17½-20c per lb. Judging from the present attitude of beekeepers, the relative proportion of comb over extracted will probably increase this coming year. Beeswax, cash to beekeepers, is selling for mostly 36c per lb. for light to medium grade.

BOSTON.—One car Porto Rico via New York City arrived since last report. Comb-honey movement slow, but is steady because of light supply, which is all in hands of dealers. California honey selling very slowly in small lots at slightly lower prices. Good demand and movement for Porto Rico honey because of relatively low prices. (Honey in glass containers is selling about 20 per cent lower than two weeks ago.) Comb: Sales to retailers, New Yorks, 24-section cases white clover No. 1, heavy \$8.50-9.00, light \$7.00-8.00. Extracted: Sales to confectioners and bottlers, Porto Rico amber, per gallon 80-90c; California, in small lots per lb., white sage 18-20c, mostly 18c. Beeswax: No demand or movement. Nominal quotations to floor-wax and candle manufacturers, per lb., domestic light 35c.

PHILADELPHIA.—Very light receipts of near-by honey, supplies generally moderate, no demand and impossible to establish a market. Dealers are loaded with high-price honey and those with relatively light supplies not buying on account condition of market. Beeswax: Heavy supplies of foreign wax in this district meeting absolutely no demand because industries using this stock are mostly closed down entirely or working short time.

ST. LOUIS.—No carlot receipts reported. Comb: Supplies are liberal with practically no demand. The market is very dull, with almost too few sales to establish a market. Sales to retailers in small lots, Colorado, white clover and alfalfa No. 1 heavy, in 24-section cases \$7.50-8.00 per case. Extracted: Supplies are also liberal with practically no demand or sales. Nominal quotations to wholesale grocers, large bakers and jobbers, per lb. in 5-gallon cans, Missouri, Arkansas, and Mississippi light amber various mixed flavors 12-13c, dark amber various mixed flavors 10-11c. California light amber alfalfa around 15c. Colorado white alfalfa and sweet

clover mixed 15-16c. Beeswax: Supplies are light, no activity at present in beeswax market, but market is nominally weaker and prices lower. Nominal quotations to jobbers, and manufacturers of floor wax and comb foundation, Missouri, Arkansas, and Mississippi, light per pound 26c.

NEW YORK.—Extracted: Liberal l. c. l. receipts from N. Y. arrived. Supplies moderate, demand and movement light, market very dull. A few bottlers, bakers, and confectioners are buying, principally South American and West Indian honey, largely in place of sugar. Sales to jobbers, large wholesalers, confectioners, bakers, and bottlers, domestic, per lb., Californias, light amber alfalfa 11-12c, white alfalfa 12-14c, few 15c, light amber sage 15-16c, white orange blossom and white sage 16-18c, mostly 17-18c. Imported, West Indian and South American refined per gallon, best, 70-75c, few 80c, poorer low as 60c. Comb: Practically no supplies, no sales reported. Beeswax: L. c. l. receipts from New York liberal. Supplies moderate, demand and movement light, market dull, very few sales reported, buying being done almost entirely in small lots. Sales to jobbers and wholesalers, South American, West Indian, and European, light 20-22c, few high as 24c; dark 18-20c per lb.

CHICAGO.—Since last report, 1 car California extracted consisting mainly of sage and alfalfa arrived. Movement very slow, the main reason for which seems to be cheapness of sugar, weak market, and prices slipping gradually to lower levels. Local storage holdings appear liberal and buyers generally inclined to hold off from buying in producing sections. Sales to bottlers, wholesale grocers, mail-order houses, and some direct to retailers—stock mainly alfalfa and clover and coming from Wisconsin, Iowa, Colorado, and Minnesota. Extracted, per lb., white 14½-15½c, light amber 14-14½c. Comb: Best No. 1, \$6.75-7.00 per 24-section case, light sections and poor-color comb bringing \$5.50-6.50. Beeswax: l. c. l. receipts moderate, but quite a lot of foreign wax arriving from Africa and South America. African wax is inferior, but South American is comparable to domestic and brings about same price. Sales mainly to wholesale drug companies and harness manufacturers; Colorado, Ohio, rado, Ohio, Wisconsin, and South America light 31-32c, dark 30c per lb.; African, mostly dark 27c per lb.

CINCINNATI.—Receipts light, with no carlot arrivals reported. Comb: Supplies light, demand moderate, market steady, prices holding firm. Sales to retailers, Ohio white clover, 24-section cases No. 1, \$8.50 per case. Extracted: Supplies liberal, practically no demand or movement, too few sales to establish market, and dealers trying to unload present stocks before buying more. Nominal quotations by receivers, Ohio, white clover 13-15c per lb. Beeswax: Supplies moderate, demand fair, market holds firm with prices practically unchanged. Sales to wholesale druggists and harness manufacturers, average yellow 39-45c per lb.

GEORGE LIVINGSTON,

Chief of Bureau of Markets.

### Opinions of Producers.

Early in January we sent to actual honey-producers in California, Colorado, Idaho, and Washington the following questions:

1. What percentage of the honey in your section is still held by the producers?
2. (a) Thru what channels has the honey been disposed of, that is out of the hands of producers? (b) and at what prices for both extracted and comb?
3. What is the condition of the bees as compared with normal? (Give your answer in per cent figures, counting normal as 100 per cent.)
4. What is the condition of the honey plants?

CALIFORNIA.—Perhaps 10 per cent of honey crop in southern California is still held by producers. A large per cent was disposed of thru the Exchange, remainder thru brokers and retail stores. The Exchange still has some sage and alfalfa honey, but the orange is all sold. Condition of the bees 90 per cent. Lack of moisture in the form of early rains makes honey plants backward.—L. L. Andrews.

CALIFORNIA.—Only a small amount of honey is still held by producer. Condition of bees 100 per cent; condition of honey plants poor for lack of rain. Bees working on willow broom, and in some

places on the gum or eucalyptus. I am told that the State Exchange is selling extracted honey at 17-20c; the amount of comb honey produced in southern California is so small as to be hardly worth mentioning. Some alfalfa comb (about No. 2 grade) was shipped here from the northern part of the State and is selling at 35-40c. Many of the producers are retailing at 18 to 25 and 30c. The great variation in prices for same quality of honey is detrimental to the producer. There should be a uniform price.—M. H. Mendleson.

**COLORADO.**—Seventy-five per cent of extracted honey and fifteen per cent of comb still held by producers. Honey has been disposed of mostly thru jobbers, extracted at 12½ to 18c, comb at about \$6.50 per case. Condition of bees and honey plants 100 per cent.—J. A. Green.

**IDAHO.**—No comb honey is held by the producers, but about 75 per cent of extracted. Honey has been disposed of to firms selling direct to consumer, extracted 15-18c, comb \$7. Condition of bees and of honey plants probably 100 per cent.—E. F. Atwater.

**WASHINGTON.**—About one-third of honey crop still held by the producers. The larger part of that sold, I think has gone direct to consumer at 18-20c for extracted honey. Judging from the mild winter and early moisture in fall I feel that the bees will come out better than usual, and the prospects are good for the 1921 yield of honey. Condition of the bees 100 per cent, judging from my own. Alfalfa and sweet clover are our sources for a honey flow, and judging from the mild winter and the moisture in the ground there is every indication of a big harvest.—Geo. W. B. Saxton.

The questions sent to producers in other States are as follows:

1. What is the condition of the bees in your part of the State as compared with normal? (Please give your answer in percentage figures, counting normal as 100 per cent.)
2. What is the condition of the honey plants in your section?
3. What portion of the honey crop, if any, is still in the hands of producers, and is honey moving?

**BRITISH COLUMBIA.**—The weather has been exceptionally mild up to the end of the year, and bees are wintering well, having had some good flights. As there are only about two more months of winter, the losses should not exceed 10 per cent. There was very little honeydew or fruit juice stored last year, which is the main cause of our troubles in wintering. White clover is in good condition, having suffered no injury from frost. Practically all of last season's honey crop has been sold.—W. J. Sheppard.

**FLORIDA.**—The condition of the bees, and also of the honey plants, is about normal. We never have much honey left at this time of the year.—Ward Lamkin.

**FLORIDA.**—The condition of the bees is 25 per cent above normal. The honey plants are in fine condition now, but it is too early to decide. None of the honey crop is in hands of producers. Honey is not moving except in a few best tourist towns.—C. H. Clute.

**ILLINOIS.**—Condition of bees normal. Clover in this section was badly killed by the drouth during July and August. What didn't die, didn't make much growth in the fall, so the prospects are very poor. Honey is practically all out of producers' hands. Movement is draggy. There is not much to move.—A. L. Kildow.

**INDIANA.**—Condition of bees 100 per cent. Condition of clover apparently good. Probably 50 per cent of honey crop in hands of producers; movement picking up.—E. S. Miller.

**IOWA.**—Condition of bees and of honey plants 100 per cent. Twenty per cent of honey crop still in hands of producers. Honey is moving in a small way as needed. Prices of honey hold up surprisingly, but no buying is done more than for moderate demand. Ground is bare, and clover may be badly killed if covering does not come soon.—Frank Coverdale.

**KANSAS.**—Condition of bees 90 per cent, of honey plants 100 per cent. Honey crop is all out of the hands of producers. Honey is selling rather slowly. The price of extracted has dropped some; comb is practically all sold.—J. A. Nininger.

**MARYLAND.**—Condition of bees 110 per cent,

of honey plants 100 per cent. About 25 per cent of honey crop still in producers' hands; honey is moving very slowly.—S. G. Crocker, Jr.

**MASSACHUSETTS.**—Condition of bees and of honey plants 100 per cent. About 20 per cent of honey crop still in hands of producers; honey is moving very slowly.—O. M. Smith.

**MICHIGAN.**—Condition of bees 100 per cent or better; honey plants never better. Honey is moving locally, but very little is going to jobbing markets.—B. F. Kindig.

**MISSOURI.**—Bees were never in better condition. Honey plants also in good condition. None of the honey, so far as I know, is still in hands of producers.—J. W. Romberger.

**NEBRASKA.**—Condition of bees 100 per cent; up to the present, condition of honey plants is good. About one-third of honey crop in hands of producers, and is moving slowly owing to fall in sugar.—F. J. Harris.

**NEW YORK.**—Condition of honey plants 100 per cent. About 25 per cent of honey crop in producers' hands, moving very slowly.—Geo. H. Rea.

**NEW YORK.**—Condition of bees fully 100 per cent; easy winter, plenty of flights. Honey plants in good condition as yet; little snow, but no heaving of clovers. Less than 5 per cent of honey crop in this county in producers' hands. Plenty in buckwheat regions. Honey is moving very slowly except at very low prices. Retail demand poor. The high prices on honey and low prices on sugar are showing bad results for honey.—F. W. Lesser.

**NEW YORK.**—Condition of bees 100 per cent, of honey plants between 75 and 100 per cent. No white honey still held by producers, but considerable dark fall honey. Demand for white honey is good, very slow for dark.—Adams & Myers.

**OHIO.**—Condition of bees and of honey plants 100 per cent. Not much honey left.—Fred Leininger.

**OKLAHOMA.**—Condition of bees 95 per cent. About 20 per cent of honey crop is still in producers' hands, and moving very slowly.—Chas. F. Stiles.

**ONTARIO.**—Condition of bees 100 per cent. In Ontario very little extreme weather to date, and honey plants in good condition. Possibly 15-20 per cent of crop in producers' hands, but just now honey is moving slowly and at somewhat lower prices than earlier in the season.—F. Eric Millen.

**PENNSYLVANIA.**—Condition of bees 90 per cent. No snow in this section, and clover will freeze out more or less. Less than 10 per cent of honey crop is in producers' hands, moving very slowly.—Harry Beaver.

**TEXAS.**—Condition of bees 80 per cent. Condition of honey plants very good. No honey in the country.—J. N. Mayes.

**TEXAS.**—Condition of bees and of honey plants 90 per cent. Ten per cent of honey crop is in hands of producers; honey is moving.—H. B. Parks.

**EAST TEXAS.**—Condition of bees 90 per cent, of honey plants 80 per cent. Fifteen per cent of honey crop in hands of producers, moving slowly.—T. A. Bowden.

### Too Late for Classification.

**FOR SALE.**—One Root-Hatch wax press, single screw, good condition, \$12.50; one 60-gal. galvanized honey storage tank, \$14.00; new, white pine, standard dovetailed ten-frame hive bodies, with metal rabbets, nailed but not painted, in lots of ten or more, \$1.25 each.

J. B. Holoepeter, Queen-breeder, Rockton, Pa.

**ITALIAN QUEENS OF WINDMERE** are superior threebanded stock. Untested, \$1.50 each; 6 for \$8.00; tested, \$2.50 each; select tested, \$3.00. Bees by the pound. Write for prices. Prof. W. A. Matheny, Ohio University, Athens, O.

Pure Italian queens and nuclei. 1 untested queen, \$1.50; 12, \$15.00; tested, \$2.50 each; 2-frame nucleus, \$5.00; 3-frame nucleus, \$6.50; queens extra.

Frank Bornhoffer, Mt. Washington, R. D. No. 17, O.

**FOR SALE.**—Extracted clover basswood honey, finest quality, put up in 10-lb. pails.

S. E. Angell, Clear Lake, Wisc.



## **MAKE THIS YEAR A COMB HONEY YEAR**

---

Normal conditions are returning, and with them Comb Honey is receiving better proportionate returns than extracted. There is and will be an under-production of comb honey.

### **TWO SUGGESTIONS**

- 1st. Use comb-honey equipment you now have.
- 2nd. Get more equipment, and make it "Root quality."

We would like to talk with you about the matter.

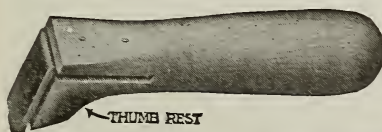
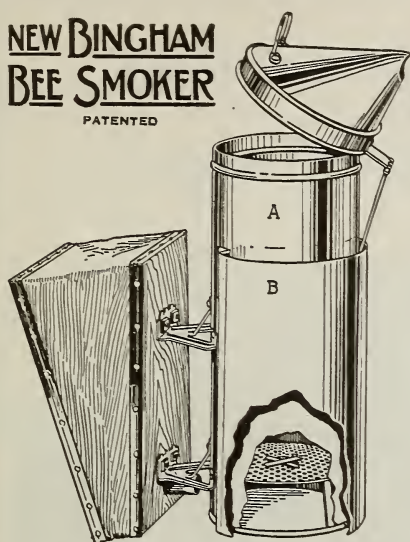
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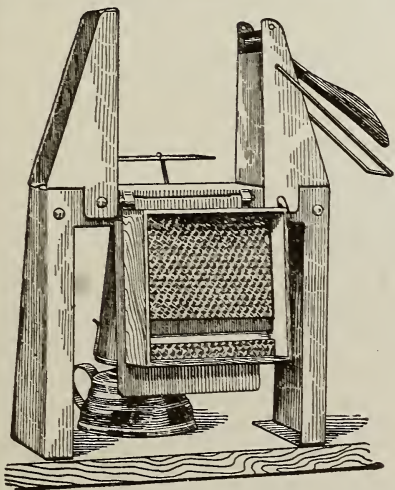
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# NEW BINGHAM BEE SMOKER

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The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey producers in the World. It is now made in five sizes.

Postage extra	Size of stove inches.	Shipping weight lbs.
Big Smoke, with shield.....	4 x10	3
Big Smoke, no shield.....	4 x10	3
Smoke Engine.....	4 x7	2 1/4
Doctor.....	3 1/2 x7	2
Conqueror.....	3 x7	1 3/4
Little Wonder.....	3 x5 1/2	1 1/2

The Big Smoke has just been produced in response to a demand for a larger-size smoker, one that will hold more fuel, require filling less often, from extensive bee handlers.

East Lansing, Mich., May 10, 1920.

A. G. Woodman Co., Grand Rapids, Mich.

Dear Mr. Woodman:—I have now had several weeks' opportunity to try out the New Smoker called the Big Smoke, with the guard about the fire pot. The smoker is even more than I anticipated and unless something else is brought out that is still better, you can be assured that this particular one will be standard equipment for this place from now on.

B. F. Kindig,  
State Inspector of Apiaries.

The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember. Our Perfect Grip Cold Handle is one of the improvements.

The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

## TIN HONEY PACKAGES

2	lb. Friction top cans, cases of 24.
2	lb. Friction top cans, crates of 612.
2 1/2	lb. Friction top cans, cases of 24.
2 1/2	lb. Friction top cans, crates of 450.
5	lb. Friction top pails, cases of 12.
5	lb. Friction top pails, crates of 100.
5	lb. Friction top pails, crates of 200.
10	lb. Friction top pails, cases of 6.
10	lb. Friction top pails, crates of 100.

Special prices on shipments direct from Chicago now.

100	5-lb. friction top pails.....	\$ 8.50
100	10-lb. friction top pails.....	12.50

Ask for our special money-saving prices, stating quantity wanted.

Send us an itemized list of your requirements and let us figure on your goods for 1921. Our new catalog will be issued about Jan. 1.

**A. G. Woodman Co., Grand Rapids, Mich., U.S.A.**



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# EDITORIAL

THE ANNUAL meeting of the American Honey Producers' League will be held at Indianapolis, Ind., in the Claypool Hotel, on Feb. 15, 16, and 17. The program for this meeting is given among Just News on page 104 in this issue. We strongly urge all beekeepers who can possibly do so to attend this important meeting.



## The A. H. P. L. Meeting.

Indianapolis, Ind., in the Claypool Hotel, on Feb. 15, 16, and 17. The program for this meeting is given among Just News on page 104 in this issue. We strongly urge all beekeepers who can possibly do so to attend this important meeting.

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THE PUBLISHERS of this journal for several months have had to consider the possible necessity for raising its subscription price. The cost of publishing is



## Gleanings Subscription Price to Remain \$1.00.

for raising its subscription price. The cost of publishing is

so abnormally high as to render it very difficult to "make ends meet"—to say nothing of any profit whatever. But with a present slightly downward turn in the prices of some printers' material, we are going to hope for further reductions in our printing costs, and in the meantime hold to the dollar subscription price. Future printing costs will determine our future subscription price. The definite announcement in some quarters that Gleanings' subscription price would be advanced to \$1.50 on Feb. 1 was premature.



PLANS ARE shaping definitely to provide a lasting beekeepers' memorial for the late Dr. C. C. Miller, in which every American beekeeper can have a share. The memorial committee to have the entire matter in charge, as appointed by the chairman, C. P. Dadant, consists of Dr. E. F. Phillips of Washington, D. C., L. C. LeSturgeon of Texas, B. F. Kindig of Michigan, and E. R. Root of Ohio. It is already decided to raise the memorial fund by popular subscription—none over a dollar, and a dime as welcome as a dollar. It is the number of beekeeper friends of Dr. Miller contributing to this memorial rather than the size of contributions, that the committee first of all seeks. Dr. Miller would prefer this if he were living, and a memorial so raised means most and is most fitting the man. Dr. Miller's birthday, June 10, will be made his memorial day, when every American beekeeper will be invited to contribute his dime or quarter or dollar to the memorial fund, sending it on that day to designated receivers of subscriptions. More definite details for the observance of this memorial day and plans for raising the memorial funds will be announced later.



## The Dr. Miller Memorial.

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REPORTS FROM beekeepers thruout the country indicate that the colonies were in splendid condition at the beginning of winter, both as to the quantity of stores and young bees. The early part of the winter has been unusually favorable for good wintering.



## General Conditions and Prospects.

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In the eastern part of the country the condition of the honey plants is quite satisfactory. White and alsike clover are reported to be in good condition except in a few small spots where there was prolonged drouth during the summer.

Recent rains in California have brought the rainfall of this season up to the total of last year in the southern part of the State, while northern California has already had from two to three times that of last year. These rainfalls promise well for California's 1921 honey crop.



BEEKEEPERS who live in the North are usually surprised to learn that there is such a thing as a wintering problem in the South. In some cases it is more difficult to have colonies come thru the winter strong and in good condition for an early honey flow in the South than it is in the North. While the bees in the South do not have to contend with extremely low temperatures nor with the terrible wastage of their vitality brought about by restlessness from accumulated feces, caused by poor stores and long periods of confinement to their hives, they may suffer even greater destruction of their vitality from useless activity in the hives and fruitless flights over barren fields when it would be infinitely better if they would remain quiet within their hives saving their vitality until it could be used advantageously. Under these conditions colonies that were strong in the fall may be reduced in the spring to mere nuclei, which build up so slowly that they are not able to take advantage of an early honey flow when it comes. Excessive winter activity also means an excessive consumption of stores during the winter period, and colonies that would be considered to be well provisioned for the long northern winter would in many cases run short of stores in the shorter southern winter. The more rapid destruction of the vitality of the bees in the South means, of course, that the period of rest from brood-rearing must be much shorter than further north, and in some cases this rest is reduced to but a few weeks.



## Wintering Bees in the South.

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In some cases winter protection as used in the North may be a great advantage in reducing winter activity by preventing the hive from warming up too much during the day; but, as one beekeeper put it, the first thing to do is to "wrap them up in lots of



honey." Beekeepers in the South, as well as in the North, who have tried leaving more honey in the hives than they think necessary are reaping rich rewards for doing so.



THE EXACT temperature best for the bee cellar depends upon so many things that to



#### Cellar Temperatures Again.

attempt to establish a standard temperature for all cellars under all conditions would be absurd. It should be high enough so that the bees will not need to generate much heat to keep the cluster warm, yet low enough to cause the bees to form a cluster and remain quiet within the hives. The important thing in keeping the bees most nearly quiet is the temperature of the air within the hive. If heat escapes from some hives more rapidly than from others a higher cellar temperature becomes necessary to maintain the best temperature of the air surrounding the cluster. The style of the hive, the size of the entrance, the size of the cluster, and the character of the stores may make considerable difference in the relation of the temperature of the air within the hive and that outside the hive. If the cellar temperature runs too low, and can not be raised by closing the ventilators or by packing exposed doors and windows, the entrances to the hives can be reduced, which should raise the temperature within. Strong colonies may be given large entrances and weak colonies small entrances, so that both may have the same temperature within the hives. The best temperature for the cellar is that which results in the greatest degree of quiescence on the part of the bees whether it be 40 degrees or 50 degrees.



IN THE fall and early winter when the bees are not active the generation of heat



#### Heat Generation in Late Winter.

within the cluster is only that required to maintain a temperature not lower than 57 degrees F. in the outer margin. As the temperature outside rises and approaches 57 degrees F., the generation of heat within the cluster is decreased accordingly; and, as the outside temperature goes lower, the generation of heat must, of course, be increased sufficiently to keep the margin of the cluster at about 57 degrees F. When the temperature outside rises to 65 degrees F. or more the cluster is broken and the bees become more active.

As the winter advances the extreme repose of November and December is not maintained, especially if the winter stores are not of the best; and the bees begin to generate heat, not for the purpose of maintaining a delicately balanced temperature within the cluster, but because of restlessness. If the stores are poor and the bees are denied a cleansing flight, the heat generated

from this cause may be many times that needed for the maintenance of the proper cluster temperature, and the earlier responses to changing outside temperatures may be completely discontinued, a much higher cluster temperature being now maintained. When this happens, of course more stores are used, and the vitality of the bees is wasted rapidly.

Even with good winter stores, a higher cluster temperature is maintained during the latter part of winter, and if the bees are in the cellar they become more and more susceptible to a higher cellar temperature. To compensate for this extra generation of heat within the hives it is sometimes necessary to lower the temperature of the cellar as spring approaches.



AFTER A SEASON'S experience with our guaranteed advertising policy we have to



#### Plain Talk on a Troublesome Matter.

announce several new conditions, both for queen and bee rearers and for their patrons.

As a journal we are pioneering in this field of guaranteed advertising, and have to "live and learn."

Entrance to our advertising columns by newcomers in the field of queen and bee rearing will be made stricter than before—and some of the advertisers of the past season will not be found in our columns again. These will be excluded, not on the ground of dishonesty, but because of lax business methods, failure to answer correspondence promptly, and proneness to promise too much in advance. We mean to exclude from our columns not only the dishonest and unreliable advertiser but also the careless and negligent advertiser.

All new advertisers will have to furnish us the best of character and financial references before entering our columns as heretofore, also satisfy us that they have colonies enough and of the right kind to make good their advertisements, and any advertiser against whom any justifiable complaint is made by one of our subscribers must expect to be excluded from our columns at least until such complaint or complaints are satisfied.

Now, a word to our subscribers about their relations to our advertisers. Some of them are quite unfair to the advertisers. Some few of them are not above the suspicion of misrepresenting to secure an advantage over the advertiser. Some of them write to us and complain of an advertiser without first complaining to the advertiser himself and giving him a chance to explain or make good—an utterly unfair thing to do. Some write us complaining bitterly of some deal with an advertiser, and then write apologizing for having done the advertiser an injustice. Some write expecting us to serve both as attorney-at-law for them and court of justice, asking immediate decision, altho

we may be a thousand miles away and don't know a proven fact in the case.

All in all, we get many hundreds of letters each beekeeping season complaining mostly of a comparatively few queen and bee rearers. Some of these complaints are justifiable, and we are anxious to receive all such in order that we can call erring advertisers to account. But many of these complaints are not justified—and these we don't want to get. We say many of these complaints are not justified because nine-tenths of our advertisers of bees and queens are entirely dependable and business-like in every way; and because many inexperienced beekeepers who order pound packages of bees do not know what to expect and a few dead bees in a package will excite them to a roar of complaint.

The sum total of the effect of the letters of complaint to us is, that the correspondence in which we are involved because of the advertisements of queen and bee rearers in *Gleanings* makes this advertising totally unprofitable to us financially and a disagreeable feature of our business at all times. We purpose to change this situation by adding the following conditions to our advertising guarantee:

Gleanings in Bee Culture will not be responsible in any way for any deal for bees or queens in which the purchaser advances the cash to the queen or bee rearer without an arrangement, either thru a bank or express company, whereby he (the purchaser) can make examination of the bees or queens upon arrival and before the money is released to the shipper. Such arrangement should provide that as many bees as arrive in good condition be accepted and paid for, and a bad-order receipt sent at once for dead bees or for bees not accepted for some other possible cause.

We repeat that the very great majority of our advertisers of bees and queens are financially responsible, prompt in business methods, and will make good in every way for money sent in advance of delivery. We never have a complaint against many of these. But some new advertisers, we find, despite bank references and references of local officials and local business men in their communities, and even despite their own good intentions, do not keep their promises to us always nor to our subscribers who patronize them. This is generally because of inexperience in the business; or because of promising an exact date of shipment without a reservation as to weather and season conditions permitting; or because of a lack of sufficient capital to warrant their engaging at all in the queen and bee rearing business; or because of lack of any provision for prompt correspondence at all times—whether during a busy or slack season in the beeyards.

So it is that we shall not hold ourselves responsible for money paid in advance to queen or bee rearers, in deals which we do not make, and which we find are often made without taking the commonest business pre-

caution. We want our subscribers to take the same business care we ourselves would take in making a deal for queens or bees—trust our "cash in advance" only to those who we know by experience have an established record of honest business dealing. Not knowing the dealer or his business reputation, we should demand the right of examination before making payment. This is not a hardship even to the new dealer in bees and queens if he is the right kind, for if he hasn't capital enough to await payment for his shipments, he hasn't capital enough to warrant his being in the business at all.

But we find no fault with the honest, business-like, prompt queen or bee rearer who demands pay in advance, either the whole or at least a part. He is worthy of such confidence, has proved himself, and can secure orders on these terms. Moreover, he knows there are tricky and dishonest beekeepers who may order queens and bees of him, and if they have not paid in advance will make all sorts of dishonest representations in dickering for a "settlement," and such tricksters have all the advantage if payment in advance has not been made. In case the queen or bee rearer does not require payment in advance, it is for him to inquire and know very certainly that the persons to whom he may send bees or queens, either C. O. D. or on credit, are strictly honest and dependable. It is for him, with the aid of all other queen and bee rearers and of *Gleanings* in Bee Culture, to make a blacklist of dishonest purchasers of queens and bees and mercilessly expose them to everybody.

Another condition: After a long experience with unjustifiable and even questionable complaints against queen and bee rearers, we shall ask that a sworn affidavit of the facts set forth in a complaint against any queen or bee rearer be furnished us when the complaint is made, such affidavit not to be made until after complaint has been made to the bee or queen rearer in the case and he has been given fair opportunity to make good. An affidavit is not difficult to make or have sworn. Anybody with a just complaint against one of our advertisers should be glad to furnish us an affidavit, and we will at once proceed (on the strength of an affidavit) to investigate the advertiser against whom complaint is made. If we find the sworn facts warrant it, we shall then not only throw the advertiser out of our columns, but at our own expense will proceed (by law if necessary) to compel him to make restitution or to secure his proper punishment.

We seek both to be relieved of the burden thrown upon us by the unwise deals of our readers and their unjust complaints, and also to drive the unreliable queen and bee rearer out of business or even to punish him by law if he so deserves.

We hope for the hearty support of our many reliable queen and bee rearers and also every reasonable subscriber, in this policy.



WHEN a scientist prominent in beekeeping was asked recently what real advantage a frame deeper than the Langstroth might

## HIVES FOR EXTRACTED HONEY

### *Increasing the Capacity of the Brood-chamber by Means of Better Combs*

By Morley Pettit

have, he replied something like this: "Well, you know most Langstroth combs have an inch and a half to two inches of stretched cells below the top-bar which the queen will not use." "Yes," I said; "and they have at least a quarter inch more wood than they need in the top-bar, and a half inch space above the bottom-bar, which itself is thicker than it needs to be."

To the elimination of this waste of space in Langstroth frames instead of enlarging them to accommodate both waste and queen, I have devoted much time, thought, and energy for several years. To begin with the frame: it was thought some years ago that the introduction of more wood in the top-bar reduced the burrcomb nuisance in comb-honey production. I know from years of experience in producing exhibition sections that the bee-space is the vital matter and not the wood; but since we are now discussing extracted-honey production, the issue need not be raised here except to illustrate the fact so ably pointed out by Demuth that most beekeepers are producing extracted honey with comb-honey equipment. To my way of thinking, the deep top-bar has not one redeeming feature. It is a pure waste of material, which is now so expensive. It is worse than waste, for it crowds the queen needlessly in the brood-chamber which is already too small, and in a double brood-chamber it increases the barrier to a free passage of the queen up and down. The extra quarter inch, over the five-eighths inch depth which we find sufficient, crowds out at least 170 worker-cells, which means a loss of 1700 possible workers per generation in a 10-frame hive.

Next, by care in having combs built, and by sorting out faulty ones, we eliminate the inch and a half to two inches of stretched cells and most of the space above the bottom-bar. Suppose we gain two inches in depth of breeding comb by this, that would be 1836 cells per comb, on a basis of 27 cells per square-inch surface. But to be conservative, say we admit that our combs may not be so nearly perfect, and that the combs in the average apiary may not be so bad, and cut this estimated gain in half. We would still have by careful methods an advantage of 918 cells per comb, and by a better frame an additional 170 cells, being a total of 1088 cells in each brood-comb. This means that by attention to good combs we increase our possible production of population in each hive by something over 10,000 worker bees, that is, two pounds, or a small

swarm every three weeks at a critical time. Isn't it worth it?

Another point in the economy of the brood-chamber is the matter of stores.

Our slogan here is, "**The brood-chamber for brood.**" There is not one month in the twelve when we want honey in the brood-chamber! We want 10 good all-worker combs, with some pollen stores and a minimum of drone-cells next the bottom, but otherwise clear for the queen to fill right to the top-bar. As described in September "Gleanings," the honey stores are kept in the food-chamber which is never removed from the hive. This is a standard shallow super, Townsend's "food-chamber," Demuth's "automatic feeder," automatic because it fills up in time of plenty and gives down in time of dearth. It supplies honey during the whole breeding season, is raised above supers as they go on, and gives the advantage which advocates of the Heddon hive used to claim for a divisible brood-chamber by removing the honey barrier between brood and supers. So the argument that deeper combs provide more room for stores falls on deaf ears when it comes our way.

Now after improving the combs we have in Langstroth frames, and adopting a food-chamber to relieve them of responsibility in that direction, we still find that we are able to produce queens which cannot fully display their talents in 10 frames. We assist them by manipulations, but that is expensive. Doubtless the advocates of a deeper brood-frame are right. Among them are men of the highest authority. Their arguments have not been convincing to me because they have stressed "room for stores," which I do not want; they continue to use a stick of timber for a top-bar; and in the Jumbo frame they add only about two inches without saying that they save the waste from stretched cells, leaving me to wonder if we have not as much actual brood space as they. We have hesitated to complicate our equipment by adding another size of frame; but that is a secondary matter if expensive manipulation can be saved; so next season 100 Jumbo brood-chambers containing frames with shallow top-bars and combs as nearly perfect as we can get them will be added to our stock and given a fair test. They will have the same food-chambers and receive the same care; but we hope they will need less manipulation.

#### **Mechanical Features of the Hive Used.**

As far as possible we use factory standard hive parts. Some modifications are made in the assembling. The stock "reversible" bottom-board is not changed, but is never

reversed, being used with the deep side up. The width of hive is  $16\frac{5}{8}$  inches as made in Ontario. This was intended for 10 frames spaced  $1\frac{3}{8}$  inches and a follower. By discarding the follower we get  $1\frac{1}{2}$ -inch spacing which we prefer. Frame spacers are " $\frac{7}{8}$ -inch bed staples," driven one in each side of the top-bar not more than one inch from the ends. They are in the same position at each end of every frame, so no matter which way the frame is turned they always function. They are close to the ends to reduce interference with uncapping knives. Being placed with edges up and down they slip into place without catching on the next top-bar. I was brought up on "finger spacers"—know all about them—and would not revert to such a time-wasting system on any account. I have tried over a thousand Hoffman-spaced frames and still have some wooden ears to trim off at each annual round-up. I have studied every other type of spacer on the market, and prefer staples. Their only objections are a slight cutting into the top-bar of the next frame and a slight tendency to weaken the lug. We overcome the latter by reinforcing the lug with a nail driven thru the top-bar and clinched. When used in the extractor they sometimes catch in the basket, and a careless uncapper may try to cut them off. The advantages of staple spacers are the small point of contact, eliminating interference by wax and propolis, and the "elasticity" of the system, by which term I mean that we are not tied to the width of spacing the factory happens to give us, and we can fix up old frames of odd widths.

After nailing, our hive-bodies are carefully "jointed," that is, they are trimmed on the edges with a long plane to make a tight joint with the next one above and below. Then metal frame rests are nailed accurately by gauge to bring the top-bars just even with the top of the hive. This leaves a full bee-space under the frames.

It makes it easy to scrape off the top-bars. But that is not all; whatever goes on next, be it queen-excluder with space turned down, or super, or cloth and cover, or moving screen with deep rim, whatever it be, it grips the frames firmly at the ends so they cannot swing; and with spacers to prevent side-shifting they need no other fastening for any kind of migrating. In wintering this arrangement provides extra space below the frames for possible accumulation of dead bees.

Our hives were first planned with migrating in view. That is why we object to projecting cleats or handles—they interfere with close loading on a truck. We have to be content with hand holes only, but we have them on all four sides. It is why we object also to a projecting cover. The one we use has a rim of folded galvanized iron only, taking practically no side space. It has the same iron over all, and inside is a wooden tray with  $\frac{7}{8}$ -inch felt or cork packing. The lower side is flat to rest evenly on the frames, but has a piece of tough smooth cloth between to prevent waxing. I never could stand having to crack loose a cover, even when waxed only around the rim. It stirs up a spirit of opposition quite out of proportion to the needs of the case.

These are the main features of the hive we use. Super and brood-chamber combs are interchangeable. That is very convenient and the main objection we have to introducing a deeper brood-comb. All combs are built on well-wired foundation, and faulty ones are sorted out and marked by a simple mark on the top-bar to be used in supers only. We endeavor to make the best use possible of the brood-chamber space; then if we can produce queens which the present brood-chamber cannot accommodate, it must be enlarged. From the beekeeper's standpoint the hive is made as simple and efficient as we know how.

Georgetown, Ont.



IT would almost seem that the subject of transferring is out of place in a modern bee journal devoted to up-to-date methods for keeping bees.

The average northern beekeeper would suppose box hives and log gums to be a thing of the past, and that we had better look forward rather than backward; but a tour thru the southern States, especially North Carolina, South Carolina, and Georgia, would convince him that these types of old-fashioned beekeeping are very much in evi-

## TRANSFERRING IN THE SOUTH

*C. L. Sams and His Methods in  
Demonstration Work Done in  
North Carolina*

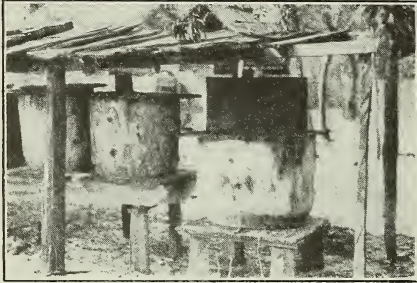
By E. R. Root

dence. In fact, in some parts of the Coastal Plain of the southeastern States the box hive or the log gums are about all one does see in the line of beekeeping. Since the war the high price for both beeswax and honey has induced the northern beekeeper to come south to buy up these old gums, which he has been able to get at from two to three dollars. Some of these box hives full of black bees have made, when transferred, splendid investments. I have known of a few cases where



colonies in gums bought for \$2.00 when transferred have brought in over 100 pounds of honey which, at war prices, have returned a thousand per cent profit.

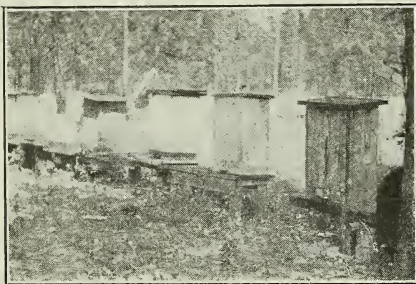
Where modern methods have been introduced the natives have been quick to see the advantage of the new system, and no longer will they part with their gums at \$2.00 each. No, sir; some of them are talk-



Log gums used for producing comb honey, with the "supers" in position.

ing eight and nine dollars where two was sufficient before. You see they have been "educated." Where that is true you must go further south or further back in the woods, and perhaps you can find bees at \$2.00. There are plenty of places in the Southland where black bees can be bought at low figures; but, mind you, after you have bought up one lot, transferred them, and shown what can be done, you can buy no more at the former prices. You will have to find "pastures new" where the native beekeeper has not been "educated."

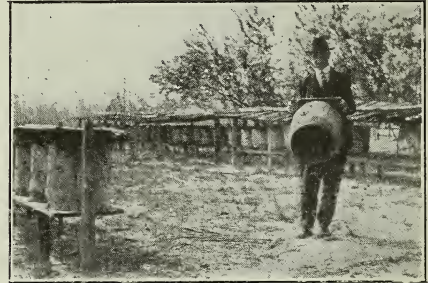
Unquestionably, the man who has done the most to "educate" the log-gum beekeeper of North Carolina is C. L. Sams,



A typical box-hive apiary such as is to be seen all over the Southland.

operating as a special bee-extension man jointly for the Bureau of Entomology, Washington, D. C., and the Department of Agriculture at Raleigh, N. C. If there is any man who thoroly knows beekeeping in the State it is Sams. He does not buy up bees at so much per, and then show the box-hive man where he lost out; but he goes out over the State giving demonstra-

tions not only on how to transfer but how to keep bees better. He will pick out some beekeeper centrally located, then send notice to all others in the vicinity that, on a certain date at this place, he will give a demonstration in transferring. At this time he will show modern hives and modern implements, such as bee-smokers and bee-veils. With these he will transfer several



Log-gum apiary of J. S. Kelly near Wilmington, N. C. Mr. Sams holding an empty gum, and altho the bees were stinging him unmercifully, he stood his ground while the Editor was "snapping" him.

colonies and then ask the box-hive beekeepers to come back later to see him take off the crop. One intelligent box-hive man "converted" to modern methods with a modern equipment serves as a tremendous object lesson to the whole neighborhood. Mr. Sams gives this one man particular attention until he can work alone. Key men like this are being established all over the State, and the effect of this kind of direct instruction, the kind that shows for itself in dollars and cents, can be imagined.

In some cases Mr. Sams advertises that he will give some live-bee stunts on a cer-



Mr. Sams tipping up the hives in a box-hive apiary, one after another, and looking "up under" to learn their condition. This is all the "inspecting" with box hives.

tain day in some city or town. These stunts are usually given in some park or on the grounds of the courthouse. All persons especially interested in bees and all fruit-growers desirous of more and better fruit are especially invited. On the day appointed he will transfer a colony or two from log gums to modern hives. While doing this



he scoops up bees with his bare hands, puts them in his hat, and then wears the hat. With bees in his hands and in his "bonnet" he will reel off before the astonished crowd an interesting story about bees and how one



Mr. Sams drumming on the hive to drive the bees up against the top board so he can remove them and then cut out the combs. Courthouse officials of Wilmington, with an inborn sense of safety and a snap, looking out from within.

of his key men, Mr. Jones, we will say, is keeping bees on the new plan over at cross-roads so and so. To the fruit men he explains the value of bees as pollinators. This kind of talks and demonstrations is certainly making a hit all over the State of South Carolina. It would be difficult to esti-



Mr. Sams, bee extension agent for Uncle Sam and North Carolina, cutting the combs of a box hive loose with a hand saw, on the courthouse grounds at Wilmington, with a crowd watching. (Courthouse officials still inside.)

mate the value in dollars and cents. If Mr. Sams keeps up this pace, South Carolina as a bee State will come forward by leaps and bounds. His is the kind of work that counts, because the eye can see the methods and the results. The proof of the pudding is in the eating.

I think I am in position to know something of Mr. Sams' work, because it was my privilege to follow him last spring over the State. I took snapshots of him in action, some of which are given herewith.

In our next issue I propose to show his methods, particularly those illustrating his plans for transferring. If there is any man in this whole country who knows this art, it is Mr. Sams.

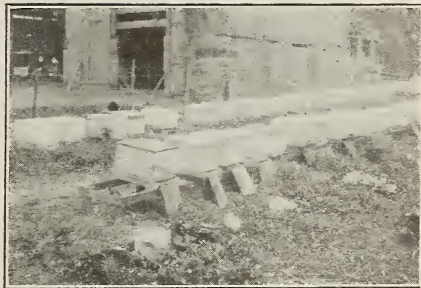
### Nature's Spacing of Combs.

The illustration at the top of this column shows how irregularly bees space their combs when they work as they used to do thousands of years before man tried to regu-



The "inards" of a box hive after the bees have been drummed out. Notice how irregularly the bees have spaced the combs.

late the distances. In view of recent discussions on the proper spacing of combs for brood-nests I was interested to measure up the distances between the combs. I made hundreds of measurements while looking over box hives in the South, and I find that the **average** spacing for worker brood seems



Modern hives into which bees in "gums" had been transferred by Mr. Sams and his helpers.

to be slightly under  $1\frac{3}{8}$  inches. The store combs run all the way from  $1\frac{1}{2}$  and  $1\frac{3}{4}$  to 2 inches, or an average of slightly over  $1\frac{1}{2}$  inches. In a large number of cases it was noticeable that the combs were spaced wider apart at the top of the box or gum, and closer together toward the centers and the bottom. The illustration shows a slight tendency that way; but it is not so pronounced as a number of others that I saw. For brood-rearing it is apparent to me that nature indicates  $1\frac{3}{8}$  inches; for drone comb and store comb,  $1\frac{1}{2}$ , altho there are wide variations, but the average runs as indicated. Some 30 years ago I had the honor of setting the spacing for Hoffman frames at  $1\frac{3}{8}$ . In view of what I saw in the Southland, perhaps, I was not far out of the way.

ONE of the important requirements in comb-honey production is that the brood-chamber be well filled with brood at the beginning of

## COMB HONEY PRODUCTION

*The Brood Chamber for Brood.  
How the Industry was Nearly  
Wrecked by Small Brood Chambers*

By Geo. S. Demuth

the honey flow, thus making it necessary that the bees begin work in the supers at once to provide a place for the incoming nectar. While the same condition is desirable in extracted-honey production, it is not so essential as in comb-honey production, since the giving of a super of empty extracting combs constitutes a strong invitation to the bees to "come up stairs" and expand their work into the supers even tho there may still be some empty comb below. On the other hand, to a certain extent, the bees must be forced into comb-honey supers by a lack of room in the brood-chamber for the incoming nectar. Too often in comb-honey production the honey flow begins before the brood-chamber is filled with brood, and if storing is begun in the brood-chamber and honey is sealed down close to the brood, the bees usually enter the supers reluctantly, being apparently satisfied with the snug and thrifty condition of having sealed honey above and around the brood area as if prepared for winter. Under such conditions the bees sometimes act as if they had finished the season's work, even tho the honey flow is just beginning, and often waste much valuable time loafing even during a good honey flow. Such colonies are usually among the first to prepare to swarm.

On the other hand, colonies that have their brood-chambers well filled with brood when the honey flow begins, should enter and begin work in the supers promptly and should expand their work into additional supers, building combs in advance of their needs so that, even tho they may be much stronger than the colonies which began their storing within the brood-chamber, they are much less inclined to swarm. This highly desirable condition of having the brood-chamber well filled with brood and almost free from honey at the beginning of the honey flow is usually present in only a part of the colonies each year and some seasons in but few if any of them, and it has long been well known that these few colonies which do happen to be in this condition are the ones which, if properly managed, give the very best results in comb honey.

It is not surprising, therefore, that the early masters in comb-honey production recognized this problem and attempted its solution. The methods which they used to get the brood-chambers filled with brood and free from honey just at the critical time—the beginning of the honey flow—have had such a far-reaching influence upon the bee-

keeping industry, and the history of the development of these methods furnishes such a striking and wholesome lesson for present-day beekeepers

that it is well worth while to review briefly this development.

### Early Attempts to Eliminate Honey from the Brood-Chamber.

In his early experiments Langstroth found that the storage of too much honey in the brood-chamber previous to the beginning of work in the boxes could be greatly reduced by the use of a shallow hive, and in adopting the particular depth of the Langstroth hive he was greatly influenced by this fact. In effect the shallow hive cuts off the honey at the top and permits placing the boxes down close to the brood, which is so important in inducing the bees to begin work in the boxes.

Langstroth built his hive to hold 10 frames and considered this to be the best size for the production of honey in the 6 to 10 pound boxes which were the "supers" of that time.

In using the Langstroth hive to produce honey in sections, beekeepers soon learned that better results could be secured from the weaker colonies by removing any combs not well filled with brood at the beginning of the honey flow and filling the vacant space with wide frames, each holding eight sections, or with thick division-boards, which came to be known as "dummies." Later, the wide frames and side storing were abandoned and dummies became a part of the regular equipment for comb-honey production.

### Reduction in the Size of the Brood-Chamber.

Since the majority of colonies usually had some combs not filled with brood, at the beginning of the honey flow many beekeepers reduced the size of the hive, cutting it down to eight frames, in order to make sure that most of the colonies would have their brood-chambers full of brood at the beginning of the honey flow. In this case, if any colonies should become crowded for room before the main honey flow, a comb of emerging brood could be exchanged with an empty comb from some colony with less than eight frames of brood. In other words, these beekeepers reasoned that better results could be secured thru a series of years by using a brood-chamber which averaged a little too small instead of one averaging a little too large.

These problems were discussed freely in the bee journals from 1885 to 1890, at which time the eight-frame hive had practically become the standard hive in this country. It should be remembered that at this time comb



honey was being produced by a great majority of beekeepers.

Later, however, it was found that the advantage of the eight-frame hives was being lost, for after a few years they in turn were not well filled with brood at the beginning of the honey flow. Within a few years beekeepers were reporting the same difficulties with the eight-frame hive that they formerly had experienced with the ten-frame hive. Instead of recognizing the cause of the smaller colonies being in the reduced capacity of the brood-chamber, with its attendant danger of a shortage of honey at the most critical periods, many beekeepers sought a remedy in a further reduction in the size of the brood-chamber. The dummys of the days of the 10-frame hive were again brought into use, and the "contraction" of the brood-chamber was advocated by most comb-honey producers,

#### Further Contraction of the Eight-Frame Hive.

This time the brood-chamber was reduced from eight frames to five frames. This contraction was done by some at the beginning of the honey flow when the comb-honey supers were put on and by others only when hiving swarms; but since most of the strong colonies swarmed and the weak ones had to be contracted to induce them to work in the supers, most of the colonies were contracted to five frames at some time during the season, the contractionist advising that parent colonies be contracted to five frames and supplied with a super in order to utilize them as well as the swarm in honey production.

At this time many of the leaders in beekeeping in this country considered five frames to be sufficient capacity for the brood-chamber except during the period of heaviest brood-rearing just previous to the honey flow from clover when the brood-chamber was temporarily expanded to eight frames. These things were taught in the beekeeping literature at the time; and at a beekeepers' convention held in Chicago in 1893 when the question was asked as to the proper size for the brood-chamber for comb-honey production, it was found that the majority of those present favored a brood-chamber of five or six frames capacity.

#### Poor Seasons Followed Reduction in Size of Brood-Chamber.

It is not surprising that the beekeeping industry suffered a period of severe depression at about this time, for the small hives and severe contraction of that period, together with the gradual elimination of basswood and fall flowers, made the existence of colonies of bees a precarious one indeed unless much feeding was practiced. The series of so-called poor seasons in the clover regions which followed the contraction had almost wrecked the industry in this excellent honey-producing region, and looking back now it seems remarkable that beekeep-

ing has even partially recovered from the terrible setback of that time.

In November, 1891, Hutchinson wrote in the editorial columns of the Beekeepers' Review as follows: "In 1888 the average yield in my apiary was 10 pounds per colony. In 1889 it was 20 pounds; in 1890 not one pound; in 1891, five pounds. \* \* \* The honey stored in my apiary the past four years would not have kept us in food more than one year. I am forced to believe that hundreds of beekeepers could make a similar report." After some remarks about the changes in his location, brought about by better agricultural methods, he continues: "What puzzles me is that we had good crops for ten years then poor crops for four years. It seems as tho the change ought to have been more gradual."

#### Poor Seasons Caused by Lack of Strong Colonies.

That the management was more at fault than the seasons was well brought out in the same journal the next month by Taylor, who wrote as follows: "In my home apiary the past season, I had one swarm for about every 25 colonies, an average of about five pounds of comb honey to the colony. But there was one colony that cast a swarm and gave a surplus of 75 pounds of comb honey over and above sufficient winter stores for the two colonies. \* \* \* There was no accession of bees from other colonies nor any robbing. Wherein was the power of this colony? Was it from the fortuitous conjunction of conditions at the most favorable times so as to produce extraordinary exertion at the nick of time? Did it possess a secret knowledge of some rich acre of clover in a sunny nook? Or was it possessed of inbred characteristics which gave it powers to excel? If in the first or last, as seems most likely, we have in them a rich field for exploration. He who finds out how to time the conjunction of conditions and to perpetuate the most desirable characteristics will abolish poor seasons, not simply find a doubtful remedy therefor."

Early the next year the same writer revealed this desirable "conjunction of conditions, which has since played such an important part in 'abolishing poor seasons,' in the following significant statement: "In the leanest of the late lean years, every colony that cast a swarm as soon as the first opening of the white clover has given me more than an average amount of surplus comb honey, and by that I mean more than an average in good seasons. Now it has come to be a fond dream of mine that all reasonably good colonies having good queens can be brought to the swarming point by that time."

The poor seasons continued for many years in the clover region when comb honey was produced. In 1901 in a personal interview with the writer, James Heddon, who at that time was a leader in American bee-

keeping, stated that his location had failed during the preceding 15 years, and that he had given up hope that the State of Michigan would ever produce another crop of honey.

#### Good Seasons Are Returning.

Gradually, however, the tide turned in the direction of better crops, as beekeepers learned to leave more honey in the hives and quit nursing along little colonies in little brood-chambers by furnishing them food on the "from hand to mouth" plan. Gradually the colonies of better beekeepers have grown larger and larger until now even the 10-frame Langstroth hive has become too small in many cases to hold all the brood of a good colony at the beginning of the honey flow, and those who are using a smaller hive now usually expect to have two stories better filled with brood at the beginning of the honey flow than was the single story of 25 to 30 years ago. The comb-honey producers of the present who are still using the eight-frame hive do not find it necessary to take out empty combs from the brood-chamber and insert dum-

mies to fill the vacant space. Instead of this they are making increase with the extra frames of brood left over when they reduce this hive from a two-story hive to a single story at the time the comb-honey supers are put on at the beginning of the honey flow.

These changes for the better have come about so gradually that many beekeepers have failed to notice the changes in their management which are largely responsible for them, and some are inclined to believe that the seasons are growing better. Others say that we have developed better queens which can fill 12 to 15 frames with brood instead of 5 to 8 as during the days of extremely small brood-chambers.

But to be convinced that the greater amount of stores which the better beekeepers are now leaving with the bees is largely responsible for the better conditions of today, it is only necessary to visit a few of the many beekeepers who still compel their colonies to live from hand to mouth, for some have not yet learned the lesson from the period of depression from which our industry has not yet fully recovered.



NO article appearing in *Gleanings in Bee Culture* in recent years caused such a deluge of discussions and suggestions as E. R. Root's article on wiring—the "Thousand-dollar Trick," that appeared in the February issue last year. In the April issue a few of these suggestions were published; but since then, during a whole year, they have not ceased pouring into *Gleanings'* office, and we have

## VARIOUS SCHEMES FOR WIRING

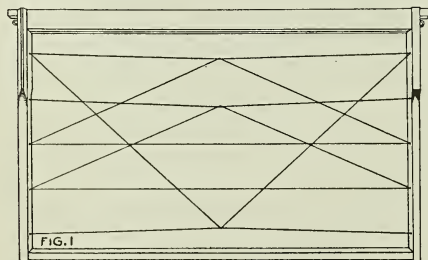
*Echoes of "The Thousand Dollar Trick." The Plan we Prefer.*

By Iona Fowls

1) is given by John Arbtin, Des Moines, Iowa, as follows:

"I use Jumbo frames, and have five horizontal wires and three brace wires. The

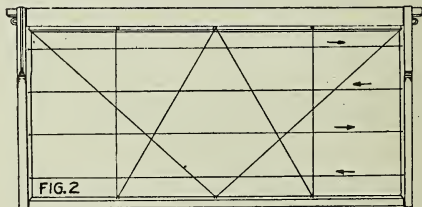
advantages of this system are that the brood-comb can not sag, the queen can lay eggs up to the top-bar, and the comb will not break down in the extractor. The disadvantages are that it takes more wire and time to fix it in this way, and it cuts up the



accordingly decided to give our readers an idea of the nature of these suggestions and also our own experience in trying many of them out.

#### Too Much Crossing of Wires.

In some of the methods there is too much crossing of the wires. One such method (Fig.



foundation more when the wires are imbedded than the old system does."

A. W. Lindsay, Detroit, Mich., gives a similar plan (Fig. 2), but in this case the wire is fastened to the top-bar and bottom-bar as well as to the end-bars. This, Mr. Lindsay believes, results in combs better attached to the bottom-bar, and brood is reared nearer the top-bar.

Our experiments have shown us that,



while these methods in which there is excessive crossing of wires make a firm comb, yet, besides the extra wire required and the extra time and trouble, there are the added objections that the comb is more likely to bulge between the wires, the wire is more

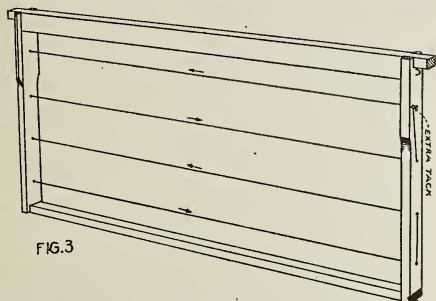


FIG. 3

likely to cut the foundation, and also drone comb is often built at the intersection of the wires.

#### Variations of Ordinary Horizontal Wiring.

An easy method, but one well worth considering, is given by J. H. Fisbeek of Missouri, who says:

"After having read the bee magazines lately, one would think that nothing more could be said concerning wiring frames; but one comes to this conclusion, however, that the effective methods are too complicated, requiring entirely too much time and labor. My plan (Fig. 3) I call the "three-tack method." Just one extra tack turns the trick. All methods prescribed call for a tight wire near the top-bar or some kind of reinforcement. With my method the frames are wired and tacked in the ordinary way except that I drive a tack along the side of the top hole in each end-bar. Placing the tacks alongside of the hole prevents the wire's sinking into the wood. The upper wire after being drawn taut is fastened at each end by these tacks. I prefer the lower wires to sag a little, to prevent the buckling of foundation in hot weather and to allow the foundation to come closer to the bottom-bar. It is the top wire which

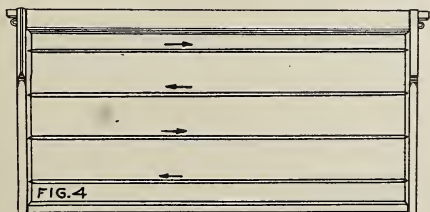


FIG. 4

needs to be taut, and this extra tack, with the manner in which it is driven, does the work."

It has been suggested by D. W. Switzer, Saluda, S. C., that the frames be wired in the usual way, and then four other horizontal wires be used with the foundation slipped

in between the two sets of wire (Fig. 4). Altho this takes twice as long, he says: "I get splendid results in getting the queens to lay close up to the top-bars. Also, frames wired this way are fine to use when shipping bees and when extracting."

Wiring in the usual way, except that the two top wires are crossed (Fig. 5), is the method suggested by E. G. McCormick, Prairie Grove, Ark. Altho Mr. McCormick does not consider the extra space above and below the crossing of the two wires to be a serious objection, still we should greatly prefer to have the wires closer at that part of the comb. He writes as follows: "The modification, by applying the mechanical

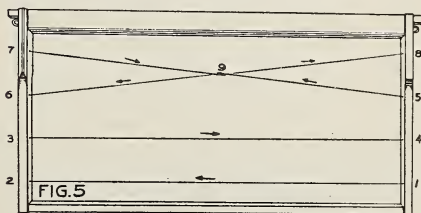


FIG. 5

principles of the truss and suspension, furnishes strength in the upper part of the comb where it is most useful. To demonstrate the additional strength over a parallel wire, place the finger on the point marked 9 in the diagram, and press downward or upward. To wire a frame in the proposed way, commence at the hole marked 1 in the diagram, and continue as in ordinary parallel wiring to 7; from 7 carry the wire in front of, under, then back of the wire running from 5 to 6, to the hole marked 8 and fasten it. If it is desired to avoid any inter-

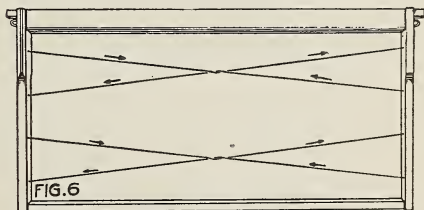


FIG. 6

ference with electric imbedding, thread the wire from 5 to 7 down thru 6 and back to 8, and insert foundation between the crossed wires, depending upon the foundation and comb to bind the wires together at 9. The writer prefers the former method, and regrets that all his frames are not so wired."

Chas. S. Kinzie of Riverside, Calif., uses the same method with the two lower wires as well as the upper. He writes as follows:

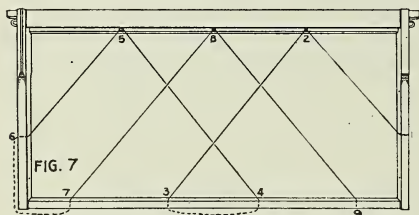
"With my plan of wiring (Fig. 6), I never have any sagging. I do not cross the wire. I wire the first wire straight, then the next over the straight one. A lot of sagging is caused by the way frames are placed when extracting. If the frames are put in the

baskets the first time with the top-bars toward the way you are turning, there will not be any sagging. But if the bottom is placed toward the way you are turning, then there will be some combs that break loose and sag."

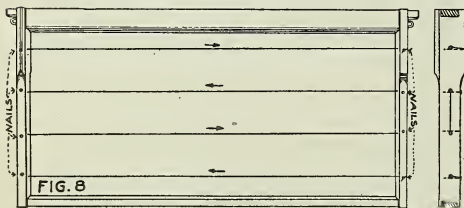
Such a looping over of the wire really amounts to two crossings at practically the same point, which, as previously explained, we have found objectionable in our experience.

#### All Wires Diagonal.

Wiring with all the wires diagonal (Fig. 7) is recommended by John L. Miles, Ridgway, Pa. He says: "The illustration will



show plainly how it is done. Beginning at 1, proceed to all the figures as shown. Care should be taken to get the wires from 2 to 3 and 7 to 8 on top of the ones from 4 to 5 and 8 to 9. This allows sliding the foundation between the wires and prevents short circuits when imbedding with electricity. The wires are fastened to the top-bar by driving tacks in the side of the corner cut. They should be equally spaced. I use the third hole from the top in the end-bar; and the bottom-bar, beginning at the end, should be drilled 2, 6½, 10½, and 15 inches. I have wired all my frames this way, and



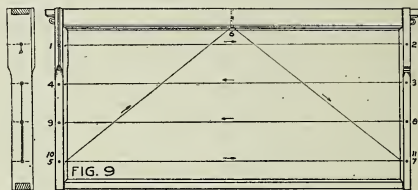
the bees build fine combs in them. I have not had a case where they made holes where the wires cross. In fact, the only objection I can see to this method is the time it takes to do it; and if this is an objection, then by the same token why wire them at all?"

Now the slight springing of the bottom-bar would probably do little harm; and so far as the theory of the braces is concerned, the plan is all right for the middle part of the frame; but there is a decided objection to those large expanses of comb unsupported by wire. Especially is this true at extracting time. More diagonal wires might overcome this objection; but this only

adds to the labor of wiring and the difficulty of inserting the foundation.

#### To Prevent Wire From Cutting Into Wood.

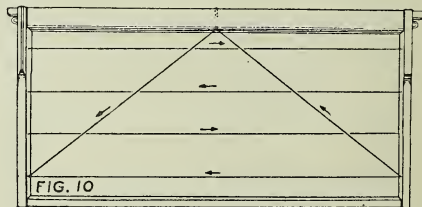
For preventing the wires from cutting into the wood, the use of staples, nails, and eye-lets has been suggested by many. In our experience we have not found that they pre-



vent stretching but that they do weaken the wire at those points where the wire pulls against them. E. G. Hand of Hilliardton, Ont., has for 20 years used nails just above or below the holes, so that the wires may be drawn taut (Fig. 8). In his letter he says:

"Here is the system I adopted more than 20 years ago, and I have never seen another that made me want to change. Wire nails are driven into the edge of the end-bars above or below the holes to catch the wire as soon as it is pulled tight and begins to cut in. With this system, wires can be pulled as tight as desired when put in and will keep their tension for years. There will be practically no trouble from wires breaking if judgment be used in tightening them, and experience soon teaches the proper tension. The wire should be drawn tight, one strand at a time, after it is strung thru and the end secured. Do not attempt to draw the three strands tight with one pull. I have never had trouble with wires breaking at any time after wiring. If pulled tight enough no vertical wire is needed, and the wires can be imbedded electrically. The wire is attached to the nails at the terminal holes at the outside, then the nails are driven in tight."

A similar plan (Fig. 9) is advocated by P. M. D. Veale of Ottawa, Ont., who makes

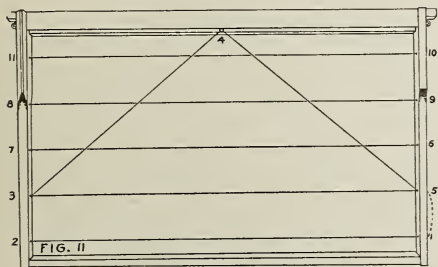


a hole thru the center of the top-bar, enlarges the holes in the end-bars with a 5/32 bit stock drill, and then drives 7/8 x 18-gauge nails into the end-bars thru the middle of the holes, so that these nails serve as axles on which the wire slips as it is pulled taut. A nail is driven in the same manner thru

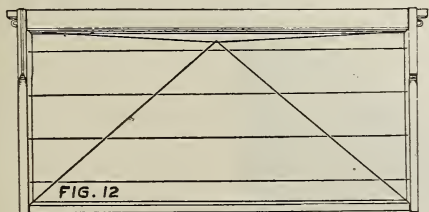
the middle of the hole in the top-bar. Beginning at 1, wire as indicated in Fig. 9.

So many have advocated the use of staples or eyelets to prevent the wire from cutting into the wood, that H. H. Root decided to give them a test. His conclusions are given below in his own words:

"We wired a number of frames with No. 28 wire with eyelets in the end-bars, and also some frames with the same-sized wire but with no eyelets in the end-bars. We suspended these frames vertically by means of a string tied around the top-bar in the middle, and then put a strain on one of the strands of horizontal wire by tying a pail to one of the wires in such a way that the pail would be suspended beneath the bottom-bar of the frame. We arranged in this



way two frames and two pails, one frame having eyelets and the other having no eyelets. With everything hanging free we began dipping water into each of the pails. In every instance the sag of the wire was apparently uniform until the pails held approximately five pounds of water when the wire in the eyeleted frames broke. Tho we repeated the experiment several times, the result was always the same. The eyelet makes a rather abrupt angle which weakens the wire. When there is no eyelet the wire sinks

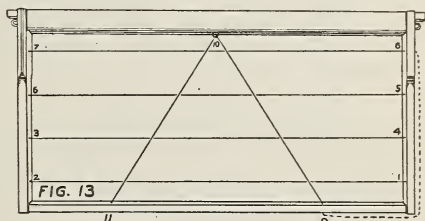


in the wood sufficiently to make a long easy curve which effectually prevents breakage. Moreover, we can see no advantage whatever, so far as the stretching of the wire was concerned, whether eyelets were used or not. It should be pointed out that the wire of today is hardly the equal of the wire of a few years ago, for it varies considerably, some being hard and some soft. The hard wire breaks easily, while the soft stretches so quickly that it may be stretched by being wound around the fingers and pulled with the two hands."

### Variations of the Thousand-Dollar Trick.

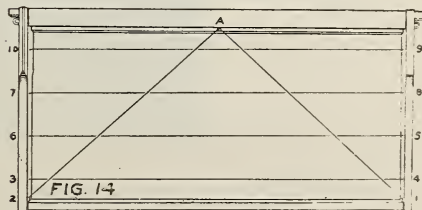
A number of the methods given are variations of the "thousand-dollar trick." Some have found that the staple in the top-bar pulls out too readily, and therefore they thread the diagonal wire thru a hole in the top-bar, and there attach it with a nail or tack (Fig. 10).

George Giesenaues, Chicago, Ill., who has Jumbo frames, threads thru five horizontal



wires, fastening the free end at 11 (Fig. 11); then before cutting the wire from the spool he takes the next to the bottom wire, stretches it up to the top-bar, and fastens it over the head of a tack at 4, as was suggested by Mr. Root in *Heads of Grain* in the June (1920) issue. The wire is then cut from the spool, leaving sufficient length to thread back thru 5 and 3, where it is to be fastened, care being taken not to allow contact of the two wires in these holes. When the Jumbo frame is completely wired in this way, the diagonal wire is unhooked from the nail in the top-bar, the sheet of foundation slipped in place between the horizontal and the vertical wires, and the loose wire slipped back over the nail-head. This method makes it possible to use an electric imbedder without danger of a short circuit.

A horizontal wire inserted under the ends of the top-bar, and a diagonal wire looped over the horizontal one and inserted between the lower ends of the end-bar and the bottom-bar (Fig. 12) may be placed in the frame at the time of making the frame, according to Wm. Grams, Sturgis, S. Dak. He uses these two wires in addition to the usual four horizontals. This style of wiring would



doubtless hold the comb firmly; but, altho we have never tried it, it seems to us it would cause considerable trouble, and the looping of one wire over another would be likely to cause drone-cells at the very place



where we least desire them. A looping of one wire over another is much more likely to cause such trouble than is a plain crossing of wires.

Several have suggested Mr. Root's plan, but having the ends of the diagonal wire attached to the bottom-bar instead of the end-bar.

H. M. Tarbox, Brattleboro, Vt., and others have suggested making two holes in the bottom-bar and bringing the wires over the corners, thus stiffening the bottom wires (Fig. 13). This method works well if the wires are drawn tightly without springing the bottom-bar too much.

#### The Plan We Like Best.

After having spent considerable time and expense in trying out many promising plans, the one that we have finally decided most satisfactory is a slight variation of the "thousand-dollar trick." The frame is pierced in the usual way with four holes in each end-bar, but in addition to this there is a 3/16 inch slot at the lower end of each end-bar.

Holding the frame with top-bar down the frame is wired horizontally thru the slots and pierced holes in the end-bars in the order indicated by the numbers (Fig. 14) and the wire is fastened at 10. The foundation is then placed on top of the horizontal wires, a tack driven thru the foundation and part way into the side of the groove in the top-

bar. The wire next the bottom-bar is then made slack and slipped over the tack at A and after being drawn taut is fastened at 1, after which the tack in the top-bar is driven clear in, the wedge tacked in place and the wire imbedded electrically.

If imbedded too deeply the wires cut the foundation, the bees make the holes still larger and then build in drone comb; therefore we advise that the wires be imbedded only on the surface of the foundation. Last summer we had hundreds of frames wired as shown in Figure 14, with no trouble from stretching or buckling of foundation. Nor were there any drone-cells at the crossing of the wires when the foundation was imbedded properly. On the whole we have found the plan a good one and one that requires but little extra work.

#### A Concluding Word.

The plans of wiring given in this article are only a few of the very many submitted. But some of these were the same, or so similar to some one of the plans mentioned above, that it would have been mere repetition to print them. Many other plans submitted were too impractical to deserve space being given to them. But out of the whole mass of correspondence regarding wiring received by us during the last year, we have endeavored to select the best ideas and give these to our readers along with explanatory drawings.



A mile of California almond trees in bloom in February.



## RETAIL HONEY CONTAINERS

### An Attractive Glass Package for Six and Twelve Pounds of Honey

It is five years since we have used tin pails to supply retail trade. Instead we have used and are still using a six-pound and a twelve-pound glass jug. We have used several thousands of these jugs and are so well pleased with them that we would not consider using tin pails again, unless it should become impossible to buy the jugs.

These jugs are a complete success in selling themselves. The white flint glass shows the honey in its natural color. The jug being of convenient size and neatly labeled, with the wood and wire handle, makes as pretty and attractive container as any one would wish to see. To see one is to want one.

We firmly believe that a display of these jugs in several downtown store windows in our cities and villages will sell more honey than a four-by-four-inch advertisement in the local daily paper of that town. We have tried it a few times, and the results were in favor of the window displays.

As a return package it is a success; that is, after people have more of these jugs than they can use for household purposes they are anxious to return them to us. So we buy them back at the same price that we charged for the jug when sold with the honey; that is, if we sell the honey at 30c a pound, a six-pound jug would amount to \$1.80 and 15c for the jug; total \$1.95. In handling the jugs we take a double sheet of newspaper, or other wrapping paper and fold it around the jug, drawing it a little tighter at the top; then the top edge of the paper is folded down enough so that an ordinary stickpin may be inserted. This allows the jug to be carried by the handle without the wrapper's slipping off. To remove the wrapper it is slipped up over the top. In handling larger quantities, say half a dozen or more, we use the wooden shipping case that is made to hold two 60-pound tin cans. This case will hold six 6-pound jugs, with room to pack the corners with wads of paper, to hold them firmly. We use this same case to ship six 6-pound jugs to retailers by packing the bottom and the top with marsh hay or straw and the sides and ends with paper. We have shipped in this way by express for over 100 miles, usually successfully.

In washing the jugs, or any other glass in hot water, to prevent breaking, one-half of the open end of the mouth of the jug is dipped into the water first and the water allowed to run down on the inside. At the

same time the outside of the jug is laid down into the water; then it is rolled over to allow the opposite side to come in contact with the hot water. This method of handling glass in hot water allows the glass to expand without breaking. If anything is inside of the jugs that cannot be removed by shaking with only hot water, a small handful of lead shot is used to shake with the water.

If the National Honey Producers' League would see fit to adopt these jugs as standard retail honey containers, we believe it



The glass honey jug, several thousand of which Mr. Hassinger has used in marketing honey.

would be a move that would bring more direct results in moving honey to the consumer than any other means of advertising could bring at the present time, considering that this would cost practically nothing, with the exception that extra care must be exercised to have the honey and the jugs clean.

The one-half gallon jugs at the last quotation were \$25.25 per gross. The one-gallon sizes sold at \$35.50 per gross, f. o. b. Chicago, or Alton, Ill. This would be 17½c each jug for the one-half gallon size, and 24 2-3c



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each for the gallon size. Before the war I bought them for 7c and 10c each, respectively. Since the consumer pays for the jug extra and has the privilege of returning the empty jug at the same price paid for it, the price does not make so much difference. However, it would be an advantage to both the producer and the consumer if the jugs were less costly; less money would be invested and the loss would be less if a jug is accidentally broken. I believe the price could be reduced considerably if all the progressive honey producers would use them, as the demand would thereby be increased so that the factory could put in full time making them.

Perhaps bee supply companies could be induced to order the jugs by the carload and advertise in their catalogs to sell to honey producers at cost. Let's ask them to do this for the good of the cause. To advertise honey in this way is to increase the demand, thereby encouraging a uniform and fair price for honey in a standard package, as a staple article to be found in any store in the United States.

Greenville, Wis. Edward Hassinger, Jr.

### NAILS AND NAILING

#### Proper Sizes and Spacing of Nails for Best Results

The U. S. Forest Products Laboratory has by experiments arrived at some conclusions regarding the economical ways of nailing wood that should be of general interest to beekeepers.

Probably a majority of beekeepers use too few nails, while quite a number of people in an endeavor to make a strong job overdo the matter by driving so many nails that they split the ends of the boards. Not a few use the wrong kind and size of nail for greatest security.

It is reported that the cement-coated nail has from 10 to 30 per cent more holding power than the same nail not coated. In most cases the barbed nail had the least holding power of any. The short nail of large diameter has small holding power, while the long slender nail lets go by its breaking. The stout nails are better for hard woods, and the long slender ones for soft woods.

For woods of medium hardness, the nails should be of the same penny as the thickness of the board in eighths of an inch; that is, 4-penny for a half-inch board, and 8-penny for an inch board.

Six-penny nails should be spaced  $1\frac{3}{4}$  to 2 inches apart, and the space increased about  $\frac{1}{4}$  inch for each additional penny in size; so that 8-penny nails should be spaced about  $2\frac{1}{2}$  inches apart.

I might add to the above information

from the Forest Laboratory, that when white pine and basswood were plentiful and cheap and most generally used by beekeepers east of the Rocky Mountains, there was little danger of using too many nails, as those woods did not check easily by nailing. But now when cheaper woods like spruce, fir, redwood, and hemlock are so much in use, especial care needs to be exercised in nailing, as these woods split easily.

In this era of expensive lumber, high freight rates, and comparatively cheap nails, it is advisable to use as light lumber and as many nails as the wood will stand in making up shipping crates and cases.

Do not fail to remember that according to the experiments related above, cement-coated nails have the greatest holding power, for wire nails; smooth nails next, and barbed nails least, in most instances.

Some years ago the army engineers at the Watertown Arsenal found by experiments that cut nails of the same length as wire nails had an average of about 60 per cent more holding power than wire nails. But as cut nails are higher in price than wire nails, very few are used at present.

As the word "penny," as applied to the size of nails, is all "Greek" to people in some sections of the country, I might state that originally an 8-penny nail weighed about 8 pennyweights, and a 40-penny spike about 40 pennyweights. Nails made now are lighter in weight, but the lengths remain the same. A 4-penny nail, that is, 4-penny size, is  $1\frac{1}{2}$  inches long; 6-penny, 2 inches long; 8-penny,  $2\frac{1}{2}$  inches long; 10-penny, 3 inches long; 12-penny,  $3\frac{3}{4}$  inches long.

However, they are liable to vary about  $\frac{1}{8}$  of an inch from the above figures, which are for "common" nails. "Fine" or finishing nails, are not much used by beekeepers, as the heads are so small that they draw thru soft woods. A. N. Clark.

Charlotte, Mich.

### EXTRA CHAMBER FOR STORES

#### Shallow Extracting-super for Stores, and Brood-chamber for Brood

Many of us are convinced that for beekeepers, in the northern sections of the country especially, the Langstroth frame is not deep enough; and, consequently, many arguments are being presented in favor of the Jumbo or Quinby frame, or the 12 or 13 frame Langstroth hive. I think we had better go slowly in making such a change. For wintering, perhaps the deep frame is superior; but for all-around purposes the Langstroth frame is superior.

Very few beekeepers now use the Lang-

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stroth hive alone as the brood-chamber thruout the season. This brings me to the arrangement which I think surpasses the deep or large hives; that is, the 1½-story Langstroth hive. You say that method has been recommended often before; but simply placing a shallow super over the brood-chamber without the proper conditions will not suffice. You must have some good dark brood-combs in both chambers; that is, having worker-cells to the top-bars in the Langstroth chamber, and worker-cells to the bottom-bars of at least six old brood-combs in the shallow super, thus bringing the brood-nests of both chambers as close together as possible. You should have four shallow combs of honey per colony saved for spring feeding. It is best to have a queen-excluder over the shallow brood-chamber thru the season. So much for equipment; now for the manipulation.

There must not be a rim of honey around the brood when the queen is laying in full swing. This is what makes a large hive become small, and the condition is hard to eliminate in deeper hives. The presence of too much pollen and granulated honey is more prevalent in deep or large hives, owing to swarming or poor queens, which also reduces the brood capacity of the hive.

To prevent this rim of honey around the brood in late spring, enough stores for winter are given to hold them until the putting on of the shallow brood-chamber, which has at least two full combs of stores on each side of the six shallow brood-combs. This means that the center combs below have brood to the top-bars with some honey in the side combs; and the placing of these nice, warm brood-combs directly over the brood (with the addition of 12 pounds of honey) entices the queen above immediately. By actual count, nine out of every ten queens were laying upstairs the second day. You must now get these shallow brood-combs filled with brood (even tho you have to remove temporarily two or three Langstroth combs, below which the queen has not occupied) before the honey flow starts, to start bees storing their honey in the super, which is placed above the shallow brood-chamber. When the rim of honey is established away up there you can replace the Langstroth combs (which were temporarily removed) without any danger of the bees' restricting the queen in laying by filling them with honey; and they maintain this size of brood-nest thruout the greater part of the season of extensive brood-rearing. This equals or surpasses almost any deep or large hive. The secret lies in getting the queens upstairs early into the shallow brood-chamber, so the first honey is stored far above the brood in the super.

During the swarming season you can tell

almost invariably which colonies will swarm by tilting the shallow brood-chamber to see if any cells are built. By simply destroying cells you can discourage almost all of these cell-builders. This beats examining frames in deep hives.

I prefer adding this brood-chamber in spring to leaving it on thru the winter, as it proves more efficacious in preventing swarming. Let me say that Langstroth hives packed in pairs or fours, pushed together, can be arranged to hold at least 40 pounds, and at the same time provide a clustering place. Simply place two empty combs on the side adjacent to the other hive, after providing the colony with eight sealed combs of stores—enough stores for almost every location. This meets another argument of the deep-and-large hive advocates.

St. Louis, Mo.

J. H. Fisbeck.

### WINTER PACKING-CASES

Summer and Winter Arrangement for the Quadruple Case

The accompanying pictures show a few novel features of my apiary practice which may be interesting to the readers of *Gleanings*.

I am a sidelinier of only five years' experience; but as I have developed my apiaries from two colonies in May, 1915, to over 300 in October, 1920, I have learned many things, and have found several opportuni-



Fig 1.—Summer arrangement for packing in groups of four.

ties to improve upon equipments and practices as found in most apiaries. I aim to have all of my equipment standard and interchangeable in my own apiaries; but you will note some things not mentioned in supply catalogs.

Picture No. 1 shows a view of one of my apiaries with the summer arrangement. My bees are all grouped on platforms which are part of the winter packing-cases. The platforms are arranged in rows running either north and south or east and west—prefer-



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ably east and west—and leveled up before the hives are placed upon them. The bottom-board is of original design to facilitate packing for winter and to allow air to circulate freely under it when standing on the platform. The standard bottom-board, rest-

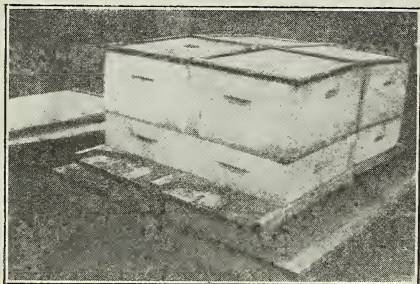


Fig. 2.—Hives raised up to permit packing below.

ing flat on the platform, holds moisture and also rots the boards. My bottom-board is half the length of the platform, so that, when arranged for winter, it fits snugly inside the winter case, and a six-inch board laid across in front of the hive provides the channel to the outside of the case.

Picture No. 2 shows the hives closed up and raised off the platform for winter

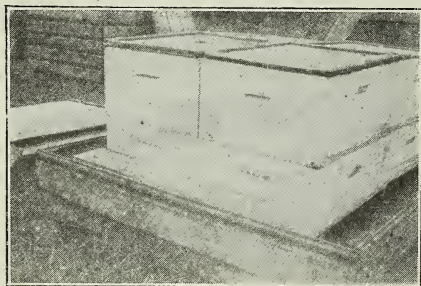


Fig. 3.—Rim in position ready for packing material beneath the hives.

packing. I find it worth while to keep a shallow super under the brood-chamber both winter and summer.

Picture No. 3 shows the bottom rim of the winter case in position, and the front end of the bottom-board covered to give a clear bee-space to the auger-holes in the rim.

Picture No. 4 shows the end panels in position. The cleats on the end panels project about four inches on the lower edge and interlock with cleats on the sides of the bottom rim, thus holding the end panels in position as seen in the picture. The cleats on the side panels are long enough on the lower edge to catch inside the bot-

tom rim, and the ends of the sides abut against the cleats in the end panels, making a nail or hook at each upper corner all that is necessary to hold the case firmly together. The cover is in two parts, the end cleats fitting outside the case. The roofing

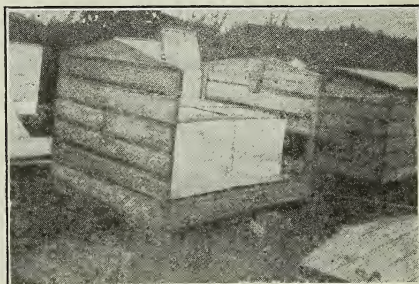


Fig. 4.—End panels held in place by projecting cleats which fit into sockets in the bottom rim.

material is allowed to project two inches on one of the halves so as to make a lap joint at the peak and prevent rain or snow from getting into the case.

Picture No. 5 shows the winter cases in position. The details of the construction of the winter case have taken several years to perfect; but now I seem to have gotten it

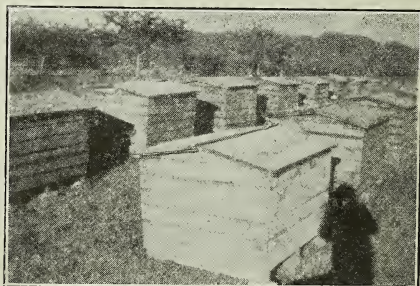


Fig. 5.—Winter cases in position.

about to suit my taste, and shall have 78 in use this winter.

A. Gordon Dye.

Rochester, N. Y.

[Two features in Mr. Dye's winter cases should be emphasized: (1) The bottom rim of the winter case (Fig. 3), together with the method of raising the hives from the floor, makes it unnecessary to lift the hives from their summer stand to put the bottom packing in place. (2) The projecting cleats at the lower edge of the ends and sides fitting behind cleats in the bottom rim hold the ends of the winter case in position (Fig. 4) before the side pieces are put in place, so that one man can assemble the case.—Editor.]

IT seems evident from the illustration on page 40, January Gleanings, that Bill Mellvir has heard of J a y Smith's slogan, "Keep more bees per hive," and put it into practice. No wonder the assembled crowd look on with wonder at results, and it is results that count.

\* \* \*

That illustration, page 37, of a healthy baby brought up by the use of honey from the very gate of death shows that there is something about honey as an article of food that is not yet fully understood. Who can tell the number of children that have died for the lack of honey!

\* \* \*

"Beekeeping in Foreign Lands," by E. L. Sechrist, page 20, is of much interest, especially what he calls "spring dwindling," which shows that there, as here, it is the result of exhaustion of old bees; and this again shows very conclusively that the more quiet bees can be kept from the time they stop breeding in the fall until they begin in the spring, the better.

\* \* \*

That wax press illustrated on page 28 and described by Mr. Holtermann looks good, but I am interested in knowing whether any one has ever melted up one of those cakes that look so dry to find out just the percentage of honey and wax. One of the surprises of my life was to discover the large amount of honey remaining in cap-pings that appeared comparatively dry.

\* \* \*

On page 17 Mr. Demuth writes of the difference in the amount of honey in the brood-chamber of a hive run for comb honey and one run for extracted honey. My own experience is that hives run for comb honey will in the fall be found to have on an average two or three times as much honey stored for winter use as those run for extracted honey. For this reason we are apt to overestimate the amount of surplus from colonies run for extracted honey.

\* \* \*

Inquiry is made on page 9 if "beekeepers realize how much their prosperity depends on the character of the soil in their respective localities." Probably they do not, but we have observed that here in Vermont we get our best yields of clover honey from the heavy clay soils of the Champlain valley of western Vermont. For some years it has seemed to me that we are likely to get our best flow of honey from any particular plant when located in the soil and environment best adapted to its most perfect development. We cannot ex-



pect to get blueberry honey from a limestone soil any more than clover honey from an acid soil. There is another way in which soil appears of inter-

est to beekeepers. European foul brood is much more virulent on some soils and in some locations than others. In some sections it will disappear of itself, while in others it is almost impossible to eradicate it.

\* \* \*

The statements made by H. B. Parks, page 25, on the desirability of "Advertising Backed up by a Constant Supply" of honey, are well worth the careful attention of beekeepers east and west. Extensive advertising can not be expected except by extensive beekeepers' organizations, which shows the necessity of such organizations. More and more, honey is becoming a staple article in grocery stores in many sections, notwithstanding the lack of organization of beekeepers, for bottlers and large beekeepers are working along this line, but there is an immense territory yet to be covered.

\* \* \*

That picture of beehives and castor beans, on page 27, looks all right certainly; but here in Vermont, with our cooler summers, the beans would not grow tall enough to be of much value in average years. Where shade is desired it has seemed to me that nothing will so perfectly fill the bill as staghorn sumac. It spreads out evenly seven to ten feet above the ground, and grows from suckers sufficiently so one planting will remain for many years. But after all I prefer to keep bees in the open, except for a few small shrubs to assist the bees in finding their hives, since one can see so much better to work. I have often found it difficult to find queens or eggs or queen-cells where there is much shade.

\* \* \*

That is a right good article by E. Wynne Boyden. I was expecting something good from him along this line later. "Honey in the Sweet Family" should be read and re-read by every young beekeeper and many old ones until this little sugar family is thoroly understood. We cannot become too well acquainted with this interesting family, for we have to do with it every day of our lives. But there is one thing I don't quite understand. Mr. Boyden tells us that levulose is worth some \$50 a pound, and I learned long ago that average honey was 40 per cent levulose. Now, if I eat five ounces of honey on my griddle cakes of a morning, an average amount, I shall swallow six dollars worth of levulose. I really didn't think I was so extravagant, but it must be so if he says so.



SOMETIMES I wonder if there is any other food writer in the country situated just as I am. You who have been subscribers for many years know that Gleanings has always catered to beekeepers only, and as the majority of beekeepers are men, in spite of a few capable exceptions, the majority of Gleanings readers are men, and the editors expect me to conduct a food page that will please them as well as their wives. Now, I have just one way of judging whether what I write is acceptable or not, and that is by the letters I receive, and it has been noticeable that when I write of some household convenience I receive many letters from nice men who are interested and wish to duplicate it for their wives.

How often does your wife sweep her kitchen, Mr. Beekeeper? You may not know, and of course it is none of my business, but I know that if she is an average housekeeper she does it at least 365 times a year. If she is exceptionally neat she may do it oftener, say twice that. If she is exceptionally untidy, or put it unfortunately, in dropping crumbs, etc., on the floor, she probably has to do it oftener or have the litter tracked all over the dining room and living room. And each and every time that kitchen is swept the dustpan and perhaps a whisk broom are brought from their hooks, closet, or shelf, the sweeper must stoop, brush up the dust, empty the dustpan in a trash basket on the back porch or out of doors, and return the dustpan and whisk broom to their appointed place. Theoretically I don't mind stooping frequently, for it probably helps keep one slender, but actually when I am tired and in a hurry I have noticed that I would rather walk a great many steps than stoop.

Then, too, I have found myself trying to estimate how much time would be saved if the floor would open up and swallow that dust when I had it swept into a neat pile. Only a minute, someone may argue; but when you multiply that minute by 365 or 730 or maybe 1,000 you have a number of hours saved in a year, hours that could be spent so much more pleasantly and profitably.

To come to the point in my story, when I sweep my kitchen now I sweep toward the gas range, and when the sweepings are collected in a heap just below the front of the range, which is the high variety with plenty of room under it, I pull a strong cord, attached at a convenient height to the near-by wall, the floor opens up, I joyfully sweep the dust into the opening, with a turn of the wrist close it, hang up the broom in the stairway to the basement, the door

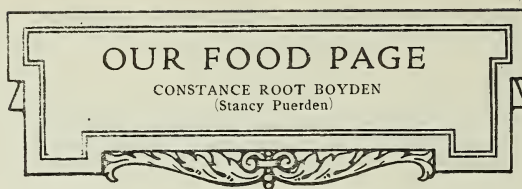
of which is close by, and depart from the kitchen with that feeling of satisfaction imparted by a task easily and quickly accomplished.

It is even more convenient than I anticipated. You know how often a few crumbs, nutshells, and the like are scattered on the floor when a member of the family is hungry and helps himself to something between meals. (That masculine pronoun was used in place of the singular, common, personal pronoun which English lacks. No personal reflections were intended.) Also when flour or other supplies are put in the cabinet a little is liable to be spilled on the floor. With the dust chute it is a simple matter to have the floor tidy again in a moment.

Another thing, if you men know anything about sweeping a bare floor you know how hard it is to corral all the "fluff" in a dustpan. Also the fine dust has a most irritating fashion of slipping under the edge of the dustpan instead of into it. I find it much easier to coax them both down the chute.

But the best part of this little convenience is that there is no reason why every housekeeper should not have one similar. Ours was made in a few hours by our seventeen-year-old son during his holiday vacation from college. He sawed thru the double floor and the inlaid linoleum, which is firmly cemented to the floor, cutting out a section 10 by 12 inches. Hinges on the back of this, a stop below the front edge, and a flat, iron bar firmly fastened down, with a loop in the end thru which to pass the strong cord which lifts it, complete an easily raised trap door which is so inconspicuous that it is hardly noticed. In the basement a light drygoods box is fitted between the floor joists just under the opening into the kitchen and fastened in place by an easily turned button. I imagine once a month will be quite often enough to empty the box.

Just at this point my New England conscience, or Western Reserve conscience, which is the same thing, forces me to explain that an ingenious brother had this sort of a dust chute in his kitchen years before we did. Since ours has been in operation my only regret is that we did not have it years ago, and I cannot understand why so many kitchens are without them. Practically all modern houses are built with clothes chutes, but the dust chute, which I consider even more of a convenience than the clothes chute, is so rare that I never saw more than one before we had our own. If you wish your wife to have kind thoughts of you at least once a day, Mr. Subscriber, just try making her a dust chute. If she is





situated as most of us are for household help, there is no danger of removing so much of the work from housework that she will not get enough exercise.

**T**HE housekeeper who can make good baking powder biscuits has the foundation for many choice recipes. Below I am giving several standard recipes for the foundation biscuit, with suggestions for a few of the tempting dishes which can be made from the foundation recipe. An inventive housekeeper will be able to think of as many more.

The drop biscuits are so easy that a child can make them successfully, and they are quite as good for certain purposes as those rolled and cut. For breakfast biscuits the flour, baking powder, salt, and shortening may be mixed the evening before. Then in the morning add the liquid and make the drop or rolled biscuits, as preferred. As small biscuits may be baked in 10 to 12 minutes it is a simple matter to have a pan of hot biscuits for breakfast without rising any earlier than necessary to make coffee and heat the ready prepared breakfast cereals.

The exact amount of liquid needed in a biscuit recipe cannot be stated, as the various flours vary so much in absorbing powers. Milk, milk and water, or all water may be used. I generally use skimmed milk.

Any kind of well-flavored fat may be used in biscuits. Chicken fat may be used for part or all the shortening, especially when the biscuits are to be served with a chicken stew poured over them. Oleomargarine gives very good flavor and texture.

The amount of shortening may be varied to suit the individual taste. For rich shortcake or baked dumplings the amount of shortening may be doubled or even more, but for the family use a very good shortcake may be made with the standard recipe for biscuits. Steamed dumplings may be made with very much less shortening, especially when served with meat stews, or they may be made with no shortening at all.

The standard recipe may easily be divided or increased by keeping the proportions the same, 2 level teaspoons of baking powder, 1 tablespoon of shortening, and  $\frac{1}{4}$  teaspoon salt for every level cup of sifted flour. Use a little more salt if an unsalted shortening is used.

#### DROP BISCUITS

2 cups sifted flour      2 tablespoons shortening  
4 teaspoons baking powder     $\frac{1}{2}$  teaspoon salt  
about  $\frac{3}{8}$  cup milk or water

Sift the flour, baking powder, and salt into a mixing bowl, cut in the shortening with 2 knives or work it in with the finger tips, mix the milk in gradually with a knife until you have a dough that will just keep its shape without spreading. Take a heaping teaspoonful, push it off on to an oiled pan or sheet with a knife, flatten it slightly, and bake in a hot oven 10 to 15 minutes or

until lightly browned. The biscuits should be about 2 inches apart.

#### CUT BISCUITS

2 cups sifted flour       $\frac{1}{2}$  teaspoon salt  
4 teaspoons baking powder    2 tablespoons shortening  
about  $\frac{3}{4}$  cup milk or water

Mix as in the preceding recipe, using just enough liquid to make a dough which is easy to handle. Pat the dough into shape on a lightly floured board, roll out lightly about half an inch thick, cut with a biscuit cutter which has been dipped in flour, arrange on a pan or baking sheet so that the edges do not quite touch each other, and bake in a hot oven 10 to 15 minutes or until delicately browned. The pan need not be oiled for cut biscuits as they are not apt to stick. Brushing the surface with cream just before baking gives a delicious crust.

#### SWEET CREAM BISCUITS

2 cups sifted flour      1 teaspoon salt  
4 teaspoons baking powder    Sweet cream

Sift the dry ingredients into mixing bowl as in preceding recipes, add the cream slowly to make a dough, and drop or roll as preferred. If the cream is very heavy, part milk may be used.

#### WHOLE WHEAT BISCUITS

Mix and bake as in any of the preceding recipes, substituting whole wheat flour for half the white flour. All whole wheat flour may be used if it is a brand that is finely ground.

#### NUT BISCUITS

Use one of the standard recipes and add  $\frac{1}{2}$  cup nuts cut small and 2 tablespoons sugar to the dry ingredients, or omit the sugar and eat the nut biscuits with honey.

#### JAM BISCUITS

Use the standard recipe for cut biscuits, roll  $\frac{1}{4}$  inch thick, cut, spread half the biscuits with jam, place another biscuit on top of each, press the edges together, brush the tops with cream, and bake as usual.

#### CHEESE BISCUITS

Make the biscuits as in the preceding recipe, but spread the lower round thickly with grated cheese instead of jam.

#### SAVORY BISCUITS

Make the biscuits as in the preceding recipes, spreading the lower round with cooked sausage instead of jam or cheese, or deviled ham may be used.

#### QUICK PARKERHOUSE ROLLS

Use the standard recipe for cut biscuits, roll as usual, spread with softened butter, crease thru the center with a knife, fold over and bake in a quick oven.

#### CINNAMON ROLLS

Use the standard recipe for cut biscuits, roll out about  $\frac{1}{4}$  inch thick, spread lightly with softened butter, then with light brown sugar in which cinnamon has been mixed,  $\frac{1}{2}$  teaspoon to  $\frac{1}{2}$  cup sugar, roll up, and with a sharp knife cut in 1-inch sections, and bake in a well-oiled pan, cut side down. Honey may be used instead of the sugar.

(Continued on page 121.)

ONE reason that beekeeping makes such a charming sideline is that the almost unlimited delight which the bees themselves offer is reflected in their natural surroundings and emphasized in the subjects with which they are most closely allied.

Their own charm is one of a myriad details. The life story of the bee is poetry, romance, wonder, science, mystery combined, a story which must be told before we are done with this subject of beekeeping as a sideline. Then there is the joy of their humming, their flashing wings, their far voyages across oceans of light, the precious treasure they bring home, their complex—one is tempted to say personality (Oh, well, let one say it for once!)—their complex and elusive personality, the ordered wonder of their crowded lives and the mystery that, in spite of the most laborious research of the scientists of many years, still hangs about them.

Then all the charm of this is caught up, as it were, and woven into a still more irresistible whole by the things that are naturally around them; the growing things of living green, flowers of almost unbelievable beauty and fragrance, birds like bits of earth's ecstasy that have taken form and wings, to fly singing towards God; and all around, the sun-shot air; beneath, the ancient earth; and above, the holy and immeasurable sky. This is all in beekeeping.

Then the things it links itself with!—fruits and clovers, till one glimpses the whole wide field of agriculture; other insects, till one stands amazed at what entomology reveals; trees and wild flowers, pollination, adaptation, botany, science, evolution, till one feels life widening, stretching away into far lands, into dim bygone ages, into strange unguessed things to come.

Imagine some business man, of a town or the suburbs of a large city, who has recently put a hive of bees into his back yard. The first spring he will scarcely know where his little workers get those earliest loads of pollen that come in almost before old winter has really gone. But when fruit trees come into bloom, either in his own or his neighbor's yard, there he will see his bees at work, there he will hear them. Some of the keenest joys of eye and ear and of deep rapturous emotion are those that float down to the beekeeper while he stands under his blossomed apple tree or the pink-petaled peach, the fairy-like plum or the magic of a cherry tree in spring, and fills his inner being with the mingled sense of sound and beauty and delicate fragrance. If bad weather keep the bees away at this time, not only do the bees and the beekeeper

## Beekkeeping as a Side Line

Grace Allen

lose, but the apple trees also. This he soon learns; and later, perhaps by bitter experience, he discovers that the poisonous sprays used by orchard-

ists to destroy insect pests sometimes destroy insect friends as well. So he will become a spreader of the gospel of spraying only before and after blooming instead of while open blossoms extend their invitations to their important friends, the bees.

When clover time comes, he will learn that unnumbered tons of the finest honey are produced yearly from the dwarf or Dutch white clover, and he will watch to know the signs of its coming. He will develop a speaking acquaintance with other clovers, alsike, crimson clover, sweet clover, that once-reputed evil weed. "How can my bees have more of these?" he will wonder, and gradually comes the understanding of their value to farmers and the consequently constantly increasing acreage. Later, when he speaks of clovers, he may learn to talk about inoculation and lime. Gradually the whole important subject of soils will begin to interest him.

In these days all insect life grows more attractive to him. Wasps and hornets and bumblebees take on new interest. How marvelous the mud or paper nests! He finds the life story of his bees—egg, larva, pupa, creature with wings—running with countless variations thru the lives of many old and new insect acquaintances. Perhaps to his amazement he learns that there are hundreds of kinds of bees besides the few he knows. He watches with new interest all flying things until, by reading and observation stimulated by reading, he comes to recognize many by name. He will likely be heard telling the children new bits of information. When they hear the shrill diminuendo sounding from tall trees in summer, he will tell them of the vibrating little drums heads of the male cicada. Or when the humble cricket, serenading his lady by rubbing his wings together, chirps on the hearth in autumn, he will enjoy telling someone, his lady perhaps, how the crickets' ears are not on their heads, but down on their legs. He will begin to study ants, to prove to his own satisfaction that they are less intelligent than his bees, surprising himself likely, by the similarities discovered. Learning the nature of honeydew, he will be led to a closer study of aphides. Moths and gay colorful butterflies will fly into the ever widening circle of his awaking interest and find in him a new friend. Not an impartial one, however. Around his hive at dusk will sometimes flutter a small sly creature borne on reddish-brown wings, which he comes to know as the wax moth; and tho, being a



careful beekeeper, he has no fear of finding her or her progeny in his hive, yet he dislikes them heartily. He may notice, or read, that the night-flying insects, particularly the moths, visit white flowers chiefly, or flowers heavily scented.

Reading more, observing more, he comes gradually to realize that his former vague ideas of pollination were pitifully rudimentary. Slowly he becomes aware of a great system spreading out before him, and while he may never master any department of natural science, he will find his whole appreciative soul deepened and enriched by the things he continues to learn. He could never write a treatise on it or become a teacher, yet he feels that he is touching the very stuff of life, the very story of its development.

When he finally learns that that early pollen brought to his hive is from the early-blooming trees, the elms and maples and willows, he probably exclaims in amazement, city-bred that he is, "And I didn't even know that those trees had blossoms!" And he will wonder how the bees knew—until, reading, he finds that trained minds have wondered that before him. Now when he sees his apple tree in bloom, "There," he will think, his books having given direction to his thinking, "is a tree that surely needs the bees, for it offers them color, odor, nectar, and pollen." And he understands anew why an apiary is profitable for an orchardist, even tho he should get no honey.

By this time he is caught in a very web of "nature study." He gets great books from the library, feverishly hoping each one is authoritative, that everything he reads may be true, tho he well knows how man flounders about thru many errors in his search for truth.

Reading away on the endless and now, to his enthusiastic beekeeping soul, endlessly fascinating subject of pollination, he learns in Gray, "the gentle Gray," someone calls him, of the wind-fertilizable plants, like the Pines and Birches and Oaks and most Grasses, that "they produce a superabundance of very light pollen, adapted to be wind-borne; and they offer neither nectar to feed winged insects, nor fragrance nor bright colors to attract them." In later spring, looking up at these trees, he can fairly see them shrug huge primitive shoulders—why put color into their blossoms, or odor or nectar—little need have they of bees and other insects—do not the winds attend to their fertilization?

At last, finding himself drawn more and more towards this great ocean-like subject of adaptation, he first shakes off the clinging heavy old superstition that the beauty of earth exists simply for man's pleasure—and then he dives boldly in. And when he comes splashing to the surface to breathe blowing the foam of classic terminology from his lips he bears in his hands many

curious things, priceless treasures of real truth, scraps of brilliant guesswork, gems of deep learning, vague conjectures and strange contradictions. But like any amateur diver, he loves them all, and he spreads them all out to dry and to keep. And he looks them over often, fondling them.

"Of the two (color and odor) odor is much more important," he cons one over, thus. "Insects are short-sighted and are thought to be usually color-blind; the honeybee is the only insect which has been positively proved to have a sense of color. (A little thrill here, as of family pride.) Fragrant flowers which are inconspicuous are visited much more than are showy ones which have no odor. Night-flying moths locate flowers readily by their fragrance." There is reason to believe that many insects detect odors which we are quite unable to perceive."

Again: "Wind pollination is the simplest form. It is also the most ancient. Insect-pollinated plants came from ancestors that were wind-pollinated." A little gasp, here, as at a sudden turn in a road, with a wide vista breaking in view.

Then this: "It is equally certain that the beautiful perfume and the nectar also are, in their present development, the outcome of repeated insect selection."

Then this, with many skips along the way: "Evolution teaches us that asters and all the triumphant horde of composites were once very different flowers from what we see today. Thru ages of natural selection, having finally arrived at the most successful adaptation of their various parts to their surroundings, they are now overrunning the earth. Doubtless the aster's remote ancestors were simple green leaves, and depended upon the wind to transfer their pollen. Then some rudimentary flower changed, gradually took on color to attract insects. As flowers and insects developed side by side, and there came to be a better and better understanding between them, mutual adaptation followed. The flowers that offered the best advertisement—" Feverishly he finishes that one and turns to this:

"Science has proved that almost every blossom in the world is everything it is because of its necessity to attract insect friends or to repel its foes—its form, mechanism, color, markings, odor, time of opening and closing, and its season of blooming being the result of natural selection by that special insect upon which each depends more or less absolutely for help in perpetuating its species."

Perhaps some day in early June our new beekeeper, who has thus found his sideline to have these mighty sidelines of its own, will take some common flower in his hand, a clover blossom, perhaps, or a dandelion, and, stirred by all these suggestions of age-old purposes and marvelous processes, he will see in it now history and prophecy and divine intent.





## FROM NORTH, EAST, WEST AND SOUTH



**In Southern California.**—We continued our trip from the Roosevelt Dam toward home by way of Phoenix and on across Arizona to Yuma. The Imperial Valley and San Diego County, both in California, were also visited on the way. The beekeepers we met on our trip were, generally speaking, in an optimistic frame of mind. While some of them had their crop of honey on hand, they did not seem at all discouraged. All with whom we talked seemed to have a very friendly feeling toward the idea of organization and look upon the Exchange plan with favor. Especially is this true as regards the selling of the products. It seems to me that the greater part of the honey produced west of the Rocky Mountains might be put into one pool. What the writer means is that if the honey was put into three grades, the white in one, and the dark in another, it would leave perhaps from 70 to 85 per cent that could be placed on the market to good advantage in one pool. The white honey will always sell without effort, and the dark is used in the manufacture of various articles and sells at a lower price, leaving a good light amber table honey to be taken care of, which is the grade that needs our very best efforts to place properly on the markets of the world.

The container is another item that we can well afford to spend much thought upon. The great waste that is going on from year to year, with the present method of putting honey in sixty-pound cans and charging it all to the loss side of the ledger of the producer, should be improved upon. As only a small per cent of the table honey ever reaches the consumer in the sixty-pound can, and the salvage is almost nothing, it stands to reason that the waste is very great. With the Exchange or other organization placing the honey on the market in small packages, much could be accomplished by having the beekeeper put his honey in drums or durable containers which could be returned to him, or sent to another producer from the central warehouse, thereby using the same container several times during the season. At the same time we would have something that would last for years, and the first cost per pound would not be much different from the present cost of cans and cases.

The market situation is not materially changed, and honey sells very slowly in car lots. The local trade takes the usual amount, and too much can not be said or done in disposing of as much of the crop as possible in the home market.

The bees are wintering only fairly well, and it would be wise to look at all doubtful colonies this month to make sure that all is well within the hive.

Several carloads of bees have already been

brought in from Idaho to winter. Each year more beekeepers are doing this. At the same time some get tired of the strenuous efforts of this mode of migratory beekeeping, and decide that they can get enough out of the business by taking good care of the bees in one locality. One of the factors that has entered very largely into the business the past few years is the question of help. This is becoming much improved, as, more and more, the enthusiastic amateur is getting to realize that a year or two spent with a successful apiarist—one that is in the business on a large scale—is time very profitably spent before he invests his hard-earned money in an apiary of his own.

Crop prospects are not very enthusing in southern California. We are considerably short of our last year's rainfall up to Jan. 1. As one man put it, this is a great country to hope in, and we always hope for rain up until June. We base our prospects almost entirely upon the amount of rainfall over the great mountain ranges of these regions, where the sage, wild buckwheat, and so-called wild honeys are produced.

Corona, Calif.

L. L. Andrews.

\* \* \*

**In Texas.**—Weather conditions in Texas are normal. The most of the bees are in excellent condition. More beekeepers than ever before have left plenty of honey in the hives. In the southwest section, where drouth in late summer reduced the honey flow and bees were on starvation rations, they are now in fair condition as late fall rains induced a flow from broomweed, goldenrod, and many of the fall blooming shrubs. The predictions of the older beekeepers that rain any time up to November will insure a horsemint crop certainly appears to be true. Seedling mint plants are everywhere. We still have with us the plague of wood rats and mice, and we can predict with certainty the loss of many colonies unless careful attention is given.

The prospect for spring trade in combless-package bees is beyond expectation. Already many sellers have contracted their entire output. These men must remember that many States into which bees are shipped have quarantine laws and are enforcing them. Texas provides free inspection, and shippers are warned that unless pound-package bees are accompanied by certificates of inspection showing that the bees originated in apiaries free from disease, they will be held up or destroyed by the inspectors of other States when the packages enter States with such regulations.

A very interesting thing is developing in the study of white sweet clover as it grows in Texas. While the plant has been tried only in limited areas, it appears that there is a line running northwest by southeast



## FROM NORTH, EAST, WEST AND SOUTH



across the State west and south of which the clover does not thrive owing to the extreme hot dry summers. In northeast Texas this plant is grown for pasture and hay, and is a great addition to the honey flora. As soon, however, as the great plain area is reached white sweet clover seldom lives thru the summer, its blooming period being much reduced.

We have long known of *Apis mellifica* in all of its forms, the East Indian honeybee, the Tiny East Indian honeybee, the Giant bees of India and the stingless bees of tropical America as producers of commercial honey, but we learned only a few days ago that there existed in Mexico and the adjacent parts of the United States quite a trade in ant honey. This honey is obtained from a number of species of ants. In one group called the honey ants, certain individuals act as storage tanks for nectar gathered by the worker ants. This honey is obtained by crushing these ants. We are told that another group of ants store honey in combs, but could find out nothing definite as to just how it is stored. The Mexicans say this honey is better than honeybee honey and largely used in medicines and drinks. Dr. S. A. Rohwer of the National Museum, Washington, D. C., writes us that the Indians of this region have long been users of this ant honey, and that a long account of the use of this honey can be found in "The Ant Book" by Wheeler.

The 'Texas Honey Producers' Association will hold its annual meeting Jan. 18 and 19, 1921, at the headquarters in San Antonio. This has been a prosperous year for the association. In 1920 the capital stock was raised from \$15,000 to \$65,000 and all the stock sold. At the annual meeting, the election of officers and business sessions will be followed by a social program, including a visit to the new honey packing plant, and some of "Zims" stunts. A larger number of members than usual will be present.

Every State likes to brag of its bee locations, but Texas has every reason to be proud of her bee territory. Carrol E. Weber, proprietor of the Hermosa Apiaries in Texas and California, is bringing all his bees to Texas, as he can make more honey here. K. C. Ormand of Pleasanton, Texas, the owner of 400 colonies, got the moving fever. He spent 60 days visiting California, Colorado, and other western bee countries, looking for a location. He returned satisfied. He will stay in Texas. H. B. Parks.

College Station, Tex.

\* \* \*

**In Iowa.** — This certainly beats all the Iowa winters I have ever seen, and last December I saw my 48th. The last statement proves that I do not belong to the feminine gender. I am working in

the shop with no fire and can keep quite comfortable. There has been scarcely any frost. The grasses are in fine condition. Bees went into winter quarters in good condition with plenty of young bees. In putting combs of honey into colonies that were a little short, it seemed to me that the clusters were exceptionally large. While our fall flow was not up to standard, as we previously mentioned, the bees seemed to breed up for winter normally. During the past two years our fall flow has acted much differently from the usual way, as has also been mentioned by other beekeepers here. Usually the heartsease commences to yield about Sept. 1 and continues until frost kills it. The past two years it began about the middle of August and ceased to yield long before frost. Last year a very unusual circumstance happened. While I was at our district fair with a honey exhibit, during the first of the week I do not think I ever saw the bees bringing in more nectar from the fall flow; but on Wednesday it rained hard and when I arrived home on Friday the bees were trying to rob and the flow was done. This was Sept 10, with no frost for several weeks later. If any beekeeper can explain why this change came so suddenly, I would like to hear it, and also if other beekeepers are having like experiences.

Ye editor, on page 11 of January Gleanings, rather favors the production of comb honey the coming season. I understand the view he takes, and looking at it from one angle it appears like good advice. I am inclined to believe comb honey will be in good demand in 1921, but what price will it bring? If it has to be sold at very much less than it did the past season (and there is every prospect that it will), no beekeeper at the present prices of comb-honey supplies can produce a first-class comb honey and put it out the way the market demands and play even. The demand for comb honey with us this season has been better than for the extracted, while last season it was the reverse. And while we sold for \$7.00 and \$7.50 per case, we did not consider it was a paying investment, and supplies for comb honey will be higher for the 1921 crop than 1920. If everything keeps going down as it has in the past few months, honey will have to come down along with the rest. There is always a limit to anything. Usually we pay for things very much according to what we are getting for our products. Farmers cannot and will not pay fancy prices for honey when everything they are selling has fallen so greatly in price. Laboring men out of employment (and there will be thousands of them before another year) cannot buy honey at 35c and 50c per pound.

W. S. Pangburn.

Center Junction, Iowa.





## FROM NORTH, EAST, WEST AND SOUTH



**In Ontario.**—Winter temperatures here in Ontario to date (Jan. 10) have been above the average, and so far we have not had a single touch of zero weather. But the winter is still young, and, no doubt, a month from now a different report will be in order. Bees in our York County apiaries have not had a flight since sometime previous to the coming of cold weather, as November was chilly continuously. A few bees were noticed in the air last week one day, but nothing like a cleansing flight was possible. On the other hand, a friend near our Binbrook apiaries south of Hamilton writes me that the bees there have had a fair cleansing flight. Sometimes 25 or 30 miles farther south means just enough difference in temperatures to make it possible for bees to fly in the southern locations while it is too cool here in York County a bit farther north.

Wholesale markets for honey are still draggy, with little prospects of conditions being better in the future as I see it, so far as this season is concerned. Retail prices are staying up quite well, compared with the slump in sugar and many other commodities.

A matter of vital interest to the beekeepers of Ontario is scheduled to come up for discussion at the next annual meeting of the association. During the last five or six years, at least two attempts have been made on the part of a few members to get the association to commit itself to the policy of asking the government to impose a tax of so much per colony on every beekeeper in the Province, the proceeds to be used to pay for inspection work. Different amounts have been mentioned; but, if I remember correctly, the levy advised by the parties behind the movement this year was a minimum of \$5.00 for beekeepers with ten colonies or under, and above that number five cents per colony. The matter was brought up at the last hour of the convention after fully two-thirds of the members had left to catch early trains for home. Members opposed to the motion, as well as others not committed one way or the other, argued that the matter was too important to be dealt with under those conditions, and it was voted to carry the resolution over till next year.

Personally, I believe in rendering unto Caesar the things that are Caesar's, but it is a question to me if it is a good policy to run after "Caesar" to suggest to him what his dues are. I am opposed to the plan for different reasons. The question of the tax itself is only a secondary one. Probably, if in force, it would hit us as hard as anyone in the Province; but a matter of \$60.00 or \$70.00 extra would be only incidental among the general expenses and would be met, of course, if called for. But as a matter of principle, I think such legislation would be entirely wrong. We have heard a lot during

the past few years on the dignity of beekeeping as a business, what the calling means to other industries when we consider the far-reaching effects of cross-pollination accomplished by the bees, etc. I believe it was R. F. Holtermann who stated at our last convention that for every dollar the beekeeper received for honey, the farmers received another dollar in extra profits from the bees' work in better pollination of certain crops, such as clover, fruits, etc. By asking the Government to take a course that no other industry would think of asking, we would lower the dignity of our profession and virtually admit that the bees are no asset to the country and that we wish to have the country bear with us for the privilege of keeping bees.

Do we find the cattle men asking for a tax to be placed upon every bovine specimen in Ontario to raise a fund for inspection, so as to have tuberculosis, foot-and-mouth disease, blackleg, etc., banished from their herds? Do horsemen ask for a tax on horses for fighting glanders? Or swine-breeders for a tax on their pigs to fight hog cholera? No, in each case the Government believes that these kindred industries are an asset to the country at large, and immense sums are spent each year to fight these diseases, and thousands of dollars are paid out to the owners for diseased stock destroyed—something that is not done in regard to bees destroyed, altho some think it would be fair for the beekeeper to be treated the same as others in that regard. I have before me a clipping from the Toronto Globe of recent date, which states that a herd of cattle (only a few miles from our home) was recently destroyed, as they all reacted to the test for tuberculosis. Sixteen Holsteins valued at \$3900.00 were destroyed, and the Government paid the owners two-thirds of the value of the herd. The item further states that Inspector Carey, who was in charge of the work, had paid out \$90,000 to farmers for stock destroyed during the last eight months, and that there are nine other inspectors employed at the same work in the Province. In the face of such figures as that, how anyone can advocate going to the Government and asking them to place a tax on us so as to raise a few thousand dollars to have our bees inspected, is a mystery indeed.

British Columbia has a law making it compulsory for all beekeepers in the Province to be registered, a nominal fee being charged each applicant. This is useful for keeping track of all beekeepers for inspection purposes, thus serving a good purpose; and at the same time a number of men are eliminated who do not take enough interest in the business to go to the trouble of registering.

Markham, Ont.

J. L. Byer.



## HEADS OF GRAIN FROM DIFFERENT FIELDS

**Best Time For Arrival of Package Bees.** My experience with pack-

age bees indicates that under favorable conditions, when received early enough the two-pound packages will produce about as much honey as full colonies wintered over here. But from one-pound packages little surplus can be obtained unless they are helped by a frame of brood, or unless the season is very favorable. Of course much depends on the time of arrival and also on the kind of queen they have. I believe the best time to receive packages here in New York State is about May 10 or between the first and fifteenth of May.

The bees that arrive in the packages are nearly all flying bees. By the fifteenth or twentieth of June very few of the original bees will be left, but the brood that was put in at the beginning will just be bringing forth a new crop of honey producers. You may have observed how the number of flying bees and nurse bees fluctuates every 30 days from the time the bees first begin to breed. As there is time from the fifteenth of May for only one crop of workers before the harvest begins, the time has to be figured out closely. If the bees are received later than this, they may be strong in nurse bees and weak in honey gatherers when the honey flow is on. This often accounts, I believe, for strong colonies being classed as poor honey gatherers when the reason is they were received out of time with the honey flow.

I would urge all who intend to purchase bees in combless packages to get them early if possible. If no surplus is expected, packages received here as late as June 20 will build up into strong colonies by fall, and if there is a late flow of buckwheat or other honey in August they may gather some surplus from it.

F. L. Barber.

Lowville, N. Y.

**Queen Not a Suicide. Do Bees Steal Eggs?** Two letters in your department of

"Heads of Grain from Different Fields" in the December number contain statements which should not go unchallenged.

On page 742 Hafford Jones is perhaps making playful statements, yet he starts out by saying that he positively knows that superseded queens commit suicide. He might as well know that every colony stores 275 pounds because one of his did. Very few queens comparatively do as did his. Most superseded queens stay on the job, if I am to be informed by my own observations. Rarely does a queen act as did this old one. I have seen queens act thus twice, and neither one of them was a supersedure queen. They were sick queens. Workers,

also, when sick, will crawl from the hive. Put a sick bee back, and at once it will come crawling out. Why should a sick queen not act like sick workers in this respect? If such statements as Mr. Jones made are to be printed, would it not be well for them to be labeled in such a manner that beginners can know them to be jokes?

On page 744 W. C. Davis says he thinks that he has clear proof that bees steal eggs. I would ask him whether he would want to be hanged on such clear proof as that. Probably he would reply, "I'd be hanged if I would." Mr. Davis has overlooked two very probable and obvious ways in which that egg could be accounted for. His very letter offers the most likely answer. He says that he found three frames full of bees on the old stand. Unfortunately, his letter offers no date, and it is more difficult for me to draw correct deductions as to this statement. Yet three frames full of bees would be rather unusual at any season of the year. From the context I should assume that he moved the hive early in the spring, say in late September or early October in South Africa. At that time with him the north side of the house would be the only side having the sun. At this season the field force would be small, and consequently he would not be likely to get three full frames of bees. It therefore looks as if his hive on the old stand came into possession of a small absconding swarm. The mixed bees were not in a happy state of perfect socialism, so the queen in the stray swarm was not long tolerated. She was allowed to lay one egg before her demise.

It has been my observation many times that old bees furnished with a queen will frequently worry that queen and soon bring about her death, but not before a cell or two have been started to furnish the colony with a queen.

Another explanation is this: Possibly the old bees went back in numbers sufficiently large to cover three combs. For hours that hive was a scene of busy (?) activity. Those bees were crazy for a queen. They were rushing in and out of that hive for a long time. Every little while they set up a loud uproar. At some time while these bees were in this uneasy state a virgin queen out on her wedding trip, or a laying queen of some small absconding swarm, was attracted by the uproar and entered that hive. This is no idle surmise, for I have had it occur more than once. If a virgin and one reared early in the spring, then it might very likely prove very poor and never get beyond the laying of one solitary egg in a queen-cell. (And, by the way, have you not frequently observed that in the case of a young queen eggs appear first in the queen-cups?)

A third possible, tho improbable, expla-

## HEADS OF GRAIN

FROM

## DIFFERENT FIELDS

nation is as follows: The moved colony was in the process of superseding its queen. It so happened that the hive was moved at the very moment when the young queen was on her wedding trip. She returned to the old stand with the field bees.

Now as there are two likely ways and one unlikely way in which that egg could be accounted for, I maintain that Mr. Davis has anything but a clear proof that bees steal eggs. Reasoning from an *a priori* premise, I should say that bees never steal eggs. Bees do only such things as instinct tells them to do. They do not reason at all. Their instincts are of long standing and probably have been accumulating for millions of years. If the instinct had been acquired to steal eggs in need, then all queenless colonies would steal eggs when hopelessly queenless. As we know for a certainty that the vast majority of hopelessly queenless colonies die or would die without our assistance, it is obvious that no instinct to steal eggs dwells within the nervous system of the honeybee.

Yours for a logical explanation of all apiarian happenings, Allen Latham.

Norwichtown, Conn.



#### Nectar Secretion Under the heading of Affected by Altitude.

"Alpine flora" one usually understands the wild vegetation forming a belt of about 3,000 feet just below the limit of the everlasting snow—that is, the plant life growing in the higher regions of the Alps, which stretch from southern France in a southeasterly direction to the Tyrol and Bavaria, crossing Switzerland in two majestic ranges. However, the Alps are not the exclusive habitat of some species which are also to be found in other mountainous regions, as the Pyrenees, Himalayas, Rocky Mountains, etc., which have similar atmospheric conditions.

The chief characteristics of the vegetation of the high region is the comparatively small size of the plant, contrasting with the profusion of flowers, the more vivid colors of the flowers compared with those of the valley, and the more pronounced fragrance. Is it surprising, after all, if we are also told that generally increased secretion of nectar is combined with the properties already mentioned?

The low growth is due to the low night temperature (the time when plants mostly grow) and the very intense sunlight during the day. Experiments have shown that while in Paris only about 68 per cent of the original sunlight reaches the ground, the rest being absorbed by the dense atmosphere, the summits of the Alps get almost a full share—Mont Blanc, for instance, getting 94 per cent.

The foregoing theory is confirmed by the fact that the underground parts—the roots of the Alpine plants—which are protected against light, show a remarkably strong development—more so than the varieties of the plain. Thus the Alpine flowers are true children of the light, but also, at times, they have to struggle against low temperatures, alternating with burning solar heat. The Alpine *Soldanella* is a nice example of a cold-resisting plant, at times pushing the flower buds thru the thin snow cap while the leaves and roots remain still covered by the cold blanket.

As already stated, the intense radiation hinders the growth of the stems and leaves; but, on the other hand, it has a stimulating effect upon the assimilation, and favors the development of flower buds, and hence the profusion of blossoms. The same factor also influences favorably the secretion of nectar. The following statistics prepared in the French Department des Pyrenees, which counts about 20,000 colonies of bees, are quite instructive. The average honey production per colony was as follows:

From sea-level to 1,000 feet, 6 lbs., 10 oz.; from 1,000 to 2,000 feet, 8 lbs. 3 oz.; from 2,000 to 3,000 feet, 11 lbs.; from 3,000 to 4,000 feet, 15 lbs. 7 oz.; from 4,000 to 5,000 feet, 19 lbs. 13 oz.

The above shows a considerable increase in the yield for the higher altitudes. As an example, it may be mentioned here that, while in the low land the spur of the orchis blossom of the white-flowering *Platanthera* is filled only about one-third of its length with nectar, it is more than half full in the higher regions.

Another indirect but very important proof of the higher content of sugar in Alpine plants is found in the fact that their stems and leaves, and frequently also the flowers, are colored red-violet. In some instances, white flowers of the plains become red in the mountains. This has been observed with the common marguerite (*Chrysanthemum leucantum*), *Pimpinella magna*, etc. This coloration is attributed by scientists to a substance called "anthocyan." In the Alps the red and violet flowers compose 63 per cent of the whole flora and in the plain only 39 per cent. On the other hand, white-flowering and yellow varieties amount to 33 per cent in the Alps, while the low land counts 55.

Many plants which under ordinary circumstances do not produce anthocyan will do it as soon as their constituent of sugar is increased, for instance, by intense radiation, as always occurs when plants from the valley are transplanted to the Alpine region.

Ernest Tschudin,

Buenos Aires, Argentina, S. A.



**Tin Tube  
Passageways.**

We are advised to go around and rake out the dead bees which drop down and clog the entrances. I did a lot of raking last winter and decided that I would try to do away with it this winter. I have entrances from two to six or more inches above the level of the bottom-board, and I am hoping to be able to leave them without attention until spring. These entrances were made

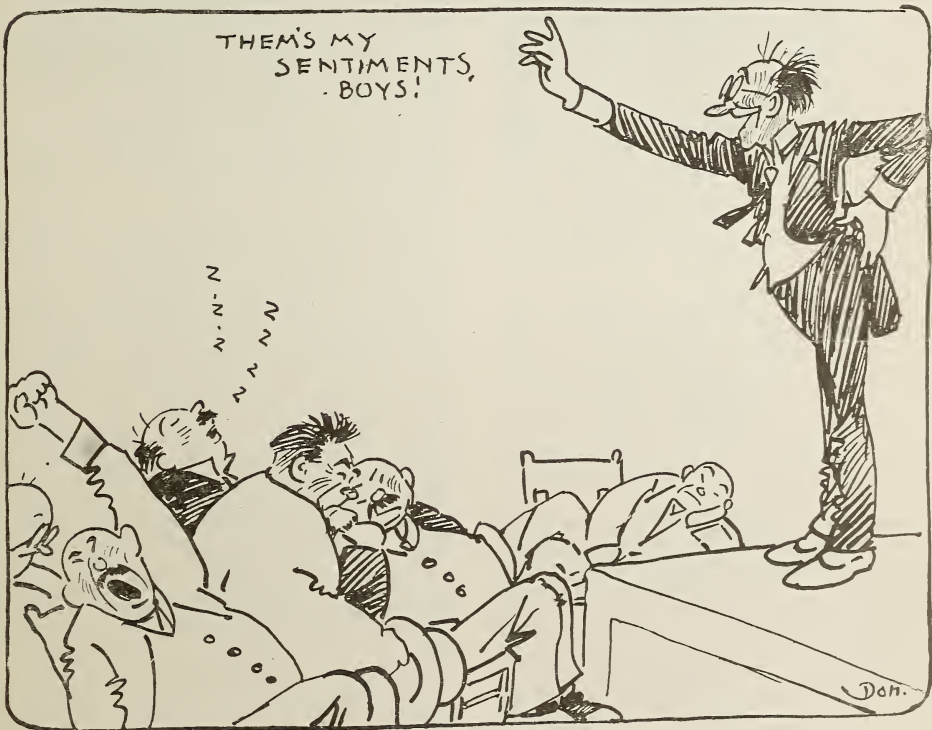
with a one-half inch bit, and there is a tin tube which connects with the outer entrance. The hives are well packed with six inches of oat chaff on all sides, four inches on the bottom, and over a foot on top. If it is desired to use the lower entrances during the summer the upper entrances can be easily closed with a stopple. Carl E. Johnson. Pomfret, Vt.

**The Talkfest.—By Bill Mellvir**

(With Apologies to Walt Mason.)

Our State Convention was a go, we beemen lined up in a row and paid our dues with greatest cheer for membership another year. We came from near, we came from far. Such things as distance cannot bar real beecranks when they want to meet and have a talkfest—what a treat! Now some were great and some were small. Some had ten hives, some none at all. Some knew a little, others none; a few had knowledge by the ton. Old Jimmy Jones from Rocky Dells was there full size and wearing bells. Old Jimmy is a little raw, but he can ply his useful jaw. He talked all day, he talked all night. If others talked they had to fight, for Jimmy always had the floor and belched forth wisdom with a roar. Now Jimmy caught a swarm last year, thus starting on

a great career; and now, great whiskers! he can talk, so one can hear him for a block. This trip has cost me many beans, which I dug up from my old jeans; I paid out rubles by the score, and all to hear old Jimmy roar! Bill Jinks sat back within the crowd and never chirped or peeped out loud. Eight hundred colonies has Bill, and yet he sat there calm and still. Now William is a lively one, producing honey by the ton, and he could give us dope so grand if only Jimmy could be canned. As I'm returning to my home, I'm like a bear with festered dome. I paid out cart wheels by the flock, but didn't get to hear Bill talk. Oh, wise and noble president, if you were worth just one red cent, you'd choke off Jimmy on the dot and make him can his tommyrot!





**Q**UESTION.—  
I have 27 colonies in the bee cellar under my residence. They are never absolutely quiet, there always being a hum to be heard, but when I listen at the entrance of any single colony I cannot detect any extra activity. Should they be absolutely quiet? The temperature of the cellar is 50 degrees F., and the entrances are  $\frac{7}{8}$  inch by the full width of the hive. I have a hot-water heater, with two pipes passing thru the bee room, which room is absolutely dry. Just what is meant by quiet? Is it dead quiet or otherwise?

New York.

**Answer.**—Bees do not hibernate as do many other insects and therefore do not become absolutely quiet during the winter. Even under the best of conditions there is a slight humming, so that when many colonies are in the cellar, a slight murmur can be detected when entering the room. It would be difficult to say just how much noise is permissible in good wintering, since this must be learned from experience. It is not always possible to maintain the same degree of quiescence year after year in the same cellar on account of the variation in the character of the winter stores if natural stores are used, on account of the variation in the colonies themselves as to numbers and age of the bees, and on account of the variation in the conditions under which they were put in especially with reference to the thoroughness of their cleansing flight just before being put in. As the winter advances cellar-wintered bees usually make more noise, or at least are more easily disturbed by slight disturbances such as light. It may be well for you to experiment with slightly changed temperatures to see at what temperature the bees are most nearly quiet. It may be necessary to lower the temperature a few degrees in February and March to keep the bees as quiet as they are now.

#### SNOW AND ICE CLOSING ENTRANCE.

**Questions.**—(1) In the A B C and X Y Z of Bee Culture one is warned (under "Entrances") against leaving a "doorstep" at the entrance of the hive when wintering bees. Just what does this mean? The hive itself has a doorstep or ledge which will catch and hold snow and the hive-stand only adds to its width. How is one to do away with the doorstep? (2) Is there not danger when using small entrances that bees or snow may close the entrance and cut off ventilation.

New York.

**Answers.**—(1) When a winter case is used it should be built without a doorstep. Simply bore holes thru the front of the winter case to line up with the tunnel thru the packing. When the Buckeye hive is used the ledge in front of the entrance will catch and hold the snow, but this trouble can be reduced to some extent by tilting the hive forward. Loose snow covering the entrance does no harm; but, if it thaws a little and then

## GLEANED BY ASKING

Editors

freezes, the entrance may be sealed by ice. (2) There is danger that small entrances may be blocked by dead bees or ice under some conditions, and

it is sometimes necessary to clean out the dead bees or clear away the ice if the entrances should be closed in this way. If the bees are well protected they will need but little air during the winter; but, if they are not well protected or if for any reason they are not wintering well, they will need much more air. While the entrances might be entirely closed with ice for a short time without harm when the bees are wintering well, it could cause serious trouble under less favorable conditions.

#### WINTERING WEAK COLONIES.

**Question.**—I have two colonies of bees that cover about three frames of brood each. I have them inside and would like to winter them in order to save the queens. How can I do this?

New York.

Stanley B. Austin.

**Answer.**—Put these small colonies in the warmest part of the cellar. If you have other colonies in the cellar, the weak ones should be placed on top of the pile of hives near the ceiling. The entrances should be reduced, unless your cellar is warmer than most bee cellars, in order that the small colonies may be able to maintain the necessary cluster temperature. If these colonies had three frames well filled with brood last fall, you should have no trouble wintering them in a good cellar provided they have good winter stores.

#### HOW TO MAKE HARD CANDY.

**Question.**—How do you make the candy that you recommend for feeding the bees in winter? I know that some of my colonies are short of stores, and I have no honey to give them.

Minnesota.

**Answer.**—Into an ordinary kettle of good size pour sugar and water in the proportion of three parts of sugar to one of water by measure. Stir thoroly. For every 20 pounds of sugar put in about one-fourth teaspoonful of tartaric acid. The mixture should be dissolved before applying the heat. Boil for an hour or so. As the white scale or incrustation forms on the inside of the kettle, scrape it down. While it is cooking, tests should be made frequently as follows: Dip up a spoonful of the boiling mixture and slowly pour it back. When it leaves a fine string it is cooked nearly enough. Now, then, from time to time, with the spoon let a stream fall into a cup of cold water. When the boiling has proceeded far enough the string under water will be brittle and crack. Another and a better way to determine when to stop boiling is to use a thermometer and bring the temperature up to 276 degrees F. By that time the water will have been evaporated, when the hot mixture can

be poured (never scraping down the sides after beginning to pour) into paper or wooden pie-plates, which must not be disturbed or moved at all till the candy has hardened. Paper pie-plates are just about right, and hold about three pounds. One of these, when cold, can be placed on top of the brood-frames upside down, being sure to place small sticks beneath the inverted plate of candy and so provide a good bee-space between it and the top of the frames.

#### MOISTURE IN HIVES IN WINTER.

Question.—Will you please tell me why my bees "sweat" during the winter? Jim Knowlden.  
Arkansas.

Answer.—This "sweating" is from the moisture given off by the bees, which in the winter time condenses on the cover and sides of the hive, because the walls of the hive are cool enough to cause condensation. For every pound of honey the bees consume they give off nearly two-thirds of a pint of water, which is given off in the form of vapor and remains in the air surrounding the bees in this form until the air is chilled to the "dew-point" when the vapor condenses and becomes visible as small drops of water. Condensation of moisture within the hives can be greatly reduced or entirely prevented by packing the hives well for winter, thus preventing the walls of the hives from becoming cold enough to condense the moisture. In this case, the moisture leaves the hive in the form of vapor thru the entrance or thru the packing and does not condense until the moisture-laden air comes in contact with cooler air or cooler material outside the winter-chamber.

#### TRANSFERRING FROM BOX HIVES.

Question.—I bought four colonies of bees in old-fashioned hives whose tops are securely nailed down. Would it be practical to bore the top of these hives full of holes and place the new hives with full sheets of foundation on top to transfer the bees? Verlin Hopkins.

Indiana.

Answer.—Yes, you can transfer in this way; but it will be better to tear off the top of the old hives entirely, and also to use at least one empty comb in the new hive instead of only frames of foundation. This one empty comb should be an old brood-comb in which brood has been reared previously. This old comb will be more attractive for the queen and will induce her to enter the new hive and begin to lay there much earlier than when only foundation is used. If the box hive is too tall, the queen may not go into the new hive even when the top is entirely removed, and the colony may become crowded and swarm without beginning work above. In this case, the box hive may be laid on its side, care being taken that the combs are vertical in their new position. The upper side of the hive should then be removed and the open end closed except an opening large enough for an entrance. Now set the new hive on top and close all openings between the two hives with boards or lath. If extracted honey is

to be produced, the old hive may be left below until the close of the season, if desired, when it should be free from honey and brood. If comb honey is to be produced the new hive should be set off when the main honey flow begins and placed on the old stand, the old hive being moved to one side of its former location. As soon as the worker brood has all emerged in the old hive, which will be three weeks after the queen went upstairs, the bees may all be driven out of the old hive and united with those in the new hive. To transfer successfully by this method, it is important that the colonies be strong enough previous to the main honey flow to cause them to occupy the new hive before the honey flow actually begins.

#### TO PREVENT SYRUP FROM GRANULATING.

Questions.—(1) Please tell me what is used to keep sugar syrup from granulating when fed for winter stores? (2) Can bees be fed here in mid-winter on sugar syrup? Ed. Busby.  
Florida.

Answers.—(1) About a teaspoonful of tartaric acid to every 15 to 20 pounds of sugar used in making the syrup will retard crystallization. The acid should be added while the syrup is hot, since its action on the sugar is more rapid when heat is applied. It is not necessary to use acid except when the syrup is made quite heavy and fed so late that the bees are not able to modify the syrup to any extent as they store it. (2) Yes, bees can be fed sugar syrup in midwinter in Florida or even much farther north, if necessary, if a warm day is selected for the feeding, if the syrup is fed while quite warm, and if the feeder full of warm syrup is placed just above the cluster to induce the bees to take the syrup readily.

#### FOUL BROOD IN THE SPRING.

Question.—I lost two colonies by American foul brood late in the fall, and have one extra strong colony which made a surplus of 80 pounds last season. How early in the spring may I determine if they also have the disease and how may I tell if disease is present? Lou Kemper.  
Indiana.

Answer.—You can tell whether American foul brood is present by examining the brood in April or May. If the colony is still extra strong when the bees begin to work in early spring it will be well to leave them alone until fruit bloom before making an examination, to be sure that no robbing will be started when you open the hive. Look carefully at the cappings of the sealed brood for this disease, and if you notice any that are discolored, sunken, or perforated, open these cells to see if the pupae are dead. By reading carefully the description of the appearance of the dead pupae or larvae in American foul brood as given in the books and bulletins, you can probably tell whether any you find are dead from this cause. As the disease advances, you can see the dried-down scales on the lower side of the cells, by holding the comb in a certain position and looking closely. These scales are the remains of the dead pupae or larvae which are not completely removed by the bees.



THE program of topics for the first annual meeting of the American Honey Producers' League, to be held at the Claypool Hotel,

Indianapolis, Ind., on Feb. 15, 16, and 17, is as follows: 2 p. m., Tuesday, Feb. 15—Call to order; Statement of Objects of Meeting, President E. G. Le Sturgeon; Report of Executive Committee; Action on Measures Proposed; Report of Secretary, by Acting Secretary H. B. Parks; Report of Educational Committee, B. F. Kindig; Report of Legislation committee, C. P. Campbell; Report of Markets Committee, Frank Rauehuss; Report of Legal Aid Committee, O. L. Hershisser; Arbitration Committee, H. B. Parks; Research Committee; Tariff Committee, A. C. Miller; Advertising Committee, Clifford Muth; New Business; "The Stranger Within Our Gates"; Election of Officers; Announcements; Adjournment at 12 o'clock noon, Feb. 17. The schedule of days and hours when these various topics will be discussed has not been given out to date.

\* \* \*

The first of the winter meetings of the Maryland State Beekeepers' Association was held at the Hotel Rennert, Baltimore, Md., on Jan. 8. This association holds monthly meetings during the winter and spring.

\* \* \*

The Eastern New York Beekeepers' Association has incorporated under the laws of the State of New York with a capital of \$10,000. The name adopted is The Eastern New York Honey Producers' Co-operative Association, Inc. D. L. Woodward of Clarks-ville is president of the association.

\* \* \*

The annual meeting of the California State Beekeepers' Association will be held at Oakland March 2, 3, 4, and 5. A fine program is being prepared for this meeting, and a big attendance is expected. On the opening day the Alameda County Association will give a luncheon of 1,000 plates at the Hotel Oakland. This luncheon is given in honor of President Pleasants.

\* \* \*

The annual business meeting of the Ulster County Honey Producers' Co-operative Association was held at the county courthouse, Kingston, N. Y., on Jan. 8. During the afternoon session very interesting and instructive addresses were given by Geo. H. Rea, Extension Specialist in Beekeeping, and W. J. Birdsall. The secretary of this association is Jas. W. Van Gassbeck.

\* \* \*

Lloyd R. Watson, Apicultural Assistant, U. S. Bureau of Entomology, has accepted the position of apiculturist with the Divi-

## JUST NEWS

Editors

sion of Entomology of the Texas Experiment Station, made vacant recently by the resignation of Mr. H. B. Parks. Mr. Parks has accepted a position

with the Texas State Honey Producers' Association and is secretary of the National Honey Producers' League.

\* \* \*

The Alameda County Association of California is a wide-awake organization having an official publication of its own, "Bees and Honey," which is published "every little while" by the association. Cary W. Hartman, Oakland, Cal., is the enterprising editor.

\* \* \*

G. H. Cale, Extension Apiculturist of the Division of Bee Culture, Bureau of Entomology, Washington, D. C., has accepted a position with Dadant & Sons, Hamilton, Ill., effective Feb. 1. Mr. Cale was formerly professor of beekeeping in the Maryland Agricultural College.

\* \* \*

The Kansas State Beekeepers' Association will hold its 20th annual meeting Feb. 4-5, 1921, in the rooms of the Chamber of Commerce, Topeka, Kan. The prospect for an increase of apiaries is good. Those interested are requested to attend these meetings. Prominent beemen will be secured to address this meeting.

\* \* \*

A series of beekeepers' meetings in the New England States is scheduled as follows: Providence, R. I., evening of Feb. 7; Boston, Mass., at Horticultural Hall, Feb. 8; Worcester, Mass., evening, Feb. 8; Durham, N. H., Feb. 9; and Storrs, Conn., Feb. 10. Editor Geo. S. Demuth will be one of the speakers at these meetings.

\* \* \*

The program of the short course for beekeepers, to be given by the New York State College of Agriculture in co-operation with the United States Bureau of Entomology at Ithaca, N. Y., Feb. 7 to 12, is received. Dr. E. F. Phillips carries a course of lectures thru the week, and many other noted speakers are scheduled for live topics. New York beekeepers cannot afford to miss this meeting.

\* \* \*

An unusually large proportion of the acreage in the irrigated lands of the Southwest was planted in cotton during 1920, but owing to the present condition of the cotton market the present tendency is to turn this cotton land back to alfalfa. Specialists in the United States Department of Agriculture have pointed out the danger of this resulting in an excessive acreage of alfalfa. Beekeepers of this section will be pleased with this tendency.



THE season has opened with us. Maple has been in bloom since Jan. 4, and pollen and nectar have both been rolling in. Brood-rearing is well under way. Why not move your bees to a country where there is no winter problem, except plenty of stores. As we get a good fall flow we are not troubled in that respect. Unless we have an unusual cold spell brood-rearing will go forward rapidly. When the poplar and gallberry bloom we will have full hives."—F. M. Baldwin, Montgomery County, Ga.

"I looked thru a number of colonies last week in the outyards along the Rio Grande River and found one with nine frames containing brood, plenty of flying drones, and about 75 pounds of honey on them. My queens as a rule down there have been laying all winter. We put out queen-cells clear up to Jan. 1 and can start queen-rearing almost any time now. However, will wait until about Feb. 10 to start grafting."—E. B. Ault, Nueces County, Tex.

"We, the beekeepers of Toowoomba, Queensland, Australia, wish to offer our deep sympathy to the relatives and friends of the late Dr. C. C. Miller, in their sad loss of such a good man. It will be a big loss to the beekeeping world. The beekeepers have lost what might be termed the big three in a very short space of time, Hutchinson, Doolittle, and Miller. Yours in sorrow." Walter H. Lincoln, Toowoomba, Queensland, Aus.

"In the January number of Gleanings in Bee Culture, Geo. J. Griesenauer of Cook County, Ills., speaks in regard to the water on the metal tops dropping down in front of the hives. To prevent this I take a 1/8 strip, tack it on inside of the cover and when the cover is in place it slants to the back. All water runs to the back of the hive and drops off."—H. M. Hodson, Henry County, Ind.

"I think the first thing to consider in preserving hives is to have them made from first-grade lumber, and then paint them with a good grade of paint. As soon as this shows signs of peeling or wearing off, apply another coat. I have some hives that I bought 41 years ago this spring. They have had two or three new bottom-boards during that time. These hives are in first-class condition, and I think they will last as long as I will. There have been several tons of honey taken from them in the last 41 years."—Geo. W. Baker, Wayne County, Ind.

"About one-half of the bees in Henniker were killed or will die from arsenical poisoning this year. As the bees are killed each

## BEES, MEN AND THINGS

(You may find it here)

year beekeepers are not trying to make up their losses, and the number of colonies is steadily decreasing. The spraying does not seem to accomplish

much as the spraying is largely for the gypsy moth, because in order to spray the permission of the owner has to be obtained, and many farmers do not feel that they can give up their pastures at that time, so there are only scattered lots that are sprayed. Different kinds of parasites have been liberated, which feed on the eggs or larvae of the moth."—S. C. Bennett, Merrimack County, N. H.

"We are having an 'Eat Florida Honey' week here this week. In Tampa alone 87 grocers have honey windows. The newspapers are giving us lots of publicity extolling the virtues of honey as a food with fine results."—Hafford Jones, Hillsborough County, Fla.

"In my 50 years as a beekeeper I have never seen bees go into winter so heavy as this fall. Other beekeepers like myself expect the extra amount of honey in the hives will be converted into brood next spring and induce swarming. The question is how to get the money to buy supplies if honey and cotton don't move soon. The beemen are in the same condition as the cotton growers with their year's labor and their capital tied up in their crop."—B. A. Hadsell, Maricopa County, Ariz.

"The Owl Drug Co. is putting out a fine cough syrup using sage honey which we supply them. They say that it is going well and it must be, for they have had close to 1000 pounds of honey for use in compounding same. If you see fit to refer to it in one of the issues of Gleanings, it might stir up some other druggist to undertake a similar production and thus make a market for more honey; and the more we can find a market for, the better for our business."—H. J. Bostwick, San Francisco, Cal.

"A mean temperature of 41.3 degrees for the month of December, with only a single day that the thermometer touched 31 degrees and then only for two hours, points to an almost needless protection against cold for bees outside here. Daily some activity is noticeable at the hive entrance, and, if for a short time the sun shines, busy workers are bringing in pollen. The source is unknown, altho grousel, mustard, and other hardy flowers are yet blossoming. When taking off the cover of winter cases and going down to the brood-nest I find no cluster, but bees evenly distributed over all the brood-frames. As usual, the light-colored bees show greater mortality or loss than the darker leather-colored."—E. J. Ladd, Portland, Ore.

MANY beginners in beekeeping have received their inspiration, as well as their start in beekeeping, from a stray swarm that chanced to pass their way as if to dare the uninitiated to attempt to put them into a hive, or perhaps that took up its abode uninvited in some empty box or barrel on the premises, thus thrusting themselves upon the future beekeeper and in many cases changing completely the career of the newly made and involuntary owner of the runaway swarm. By this simple method many of our noted beekeepers, including A. I. Root and the late lamented C. C. Miller, began their beekeeping career.

Beginners might be advised to adopt this method in making a start in beekeeping; but in most cases they would be compelled to wait a long time for the stray swarm to chance their way, and, in addition to this, in many cases the inspiration comes before the bees.

The inspiration may come thru some one of the many subjects which are so closely related to beekeeping, as enumerated by Grace Allen in this issue. For instance, many of the entomologists of this country are enthusiastic beekeepers, their interest in bees coming thru the general subject of entomology. In a few cases only does the inspiration to keep bees come from a desire to make money out of the business, tho it is probably one of the best-paying playthings in the catalog of diversions for tired folks. Most of the successful beekeepers who are making a good living from their bees today began without a thought of financial profit, but because of a keen interest in the subject, tho they may have had in mind from the start the possibility of furnishing the table with just a little "home-grown" honey.

When the inspiration to keep bees does come, it usually comes with a vengeance, and the enthusiasm of the beginner runs high. This impelling enthusiasm is known as the "bee fever," and few who have ever had a real siege of it fully recover.

#### Books and Bulletins.

This month is a good time to prepare for a beginning in beekeeping in the spring. The very first thing, if not already done, is to procure and read some of the best books on beekeeping, as well as the available bulletins on the various phases of this subject published by the Department of Agriculture at Washington. By writing a postal card to the Bureau of Entomology, Washington, D. C., asking for bulletins on beekeeping applying to your locality, you can obtain free of charge several bulletins properly selected for your needs.

#### Best Way to Purchase Bees.

The second step is that of arranging to

## TALKS TO BEGINNERS

By the Editor

procure the bees and the necessary equipment. The very best way to obtain the bees, where it is possible to do so, is to purchase one or more colonies in

well-made modern hives from some neighboring beekeeper. The books and bulletins referred to above contain illustrations and descriptions of the modern beehive, so the beginner should be able to tell if he is buying a standard modern hive from its general structure and appearance. When bees are purchased locally the beekeeper from whom they are purchased can render valuable assistance by preparing the bees for moving.

#### Judging Condition of Colonies.

It is usually necessary for the beginner to take the word of the one who sells the bees as to the condition of the colonies. The two chief things to look for at this time of year in selecting the colonies are the size of the bee cluster and the amount of honey in the hive. The beekeeper can show the purchaser the size of the cluster by looking in at the top of the hive to see how many spaces the bees occupy; and some idea of the amount of honey in the hive may be obtained by lifting the hives if they are not packed, then lifting an empty hive to note the difference in weight. The cluster should occupy not less than four of the spaces between the combs when the temperature outside is near freezing, and the hive, bees, and honey should be 25 pounds or more heavier than an empty hive at this season.

If colonies of bees in good hives can not be purchased locally, it may be possible to purchase neglected colonies which may be in modern hives but having combs so crooked that they can not be removed without tearing them to pieces, or they may be in boxes or log gums. Usually the job of transferring bees from boxes or gums to modern hives should not be attempted by a beginner until after he has handled bees under more favorable conditions, but the writer has known several beginners whose first experience in handling bees was in transferring. If it is desirable to obtain a lot of experience in a short time this is a good way to do it, but the ordinary beginner will do well to have a more experienced operator do the work while he looks on. A bulletin which tells how to transfer can be had free from the Bureau of Entomology at Washington, D. C. If bees cannot be obtained locally they can be obtained from a distance in full colonies, small colonies (nuclei), or in combless packages. When sold in this way the shipper sends complete directions for taking care of the packages on arrival. The address of reliable dealers who sell bees in this way may be found in the advertising pages of this journal.



**Y**EARS ago when these Home papers were first started in Gleanings, there was some discussion and some criticism in regard to the way I was "mixing religion and business;" but, may the Lord be praised, just now it is nothing particularly strange to see a class journal mix religion and business; and my impression is that the whole wide world begins to recognize that neither business nor religion is injured by combining the two.

This matter was brought to mind by an article in the *Manufacturers' Record*, of Baltimore, Md., in its issue for May 27. By the way, this magazine, in almost every issue, recognizes the importance of letting our religion show in all our business transactions. Some time ago the *Sunday School Times* claimed that almost every business house that has stood and flourished for 50 years or more had some God-fearing and church-going man at the head of it. Now for the article in the *Record*:

MARSHALL FIELD & CO. ON SUNDAY OBSERVANCE AS A FACTOR IN CIVILIZATION.

Marshall Field & Co. of Chicago are probably the greatest merchants in America. Their operations are of vast extent, and for over half a century that concern has ranked as one of the great business leaders of America. By reason of this fact, it is specially interesting to note the position which the company takes in regard to the observance of the Sabbath, believing that in this way they are contributing to the welfare of the world.

Their view on this point was expressed in a letter under date of December 1, 1919, to the editor of the *Daily News of Elgin, Ill.* A copy of this letter has just come into our possession, and as an interesting presentation of their view of the non-commercialization of Sunday we give it in full, as follows:

"Answering your inquiry of the twenty-fourth ultimo, we will say that during fifty-odd years of business, Marshall Field & Company never have advertised in Sunday newspapers. They have followed the rule that six days for labor and the seventh for rest was best for employer and employee.

"We regard Sunday advertising as an unnecessary infraction of this very wholesome, many-century-old religious dictum, and are glad to follow it.

"We are said to have the most wonderful display windows in the world, covering four sides of a block. The curtains of these windows are lowered from Saturday night until Monday morning, though we have been urged by many people to allow this display to go forward on the Sabbath Day.



Remember the sabbath day to keep it holy.—  
Ex. 20:8.

If thou turn away thy foot from the sabbath, from doing thy pleasure on my holy day, and call the sabbath a delight, the holy of the Lord, honorable, and shalt honor him, not doing thine own ways, nor finding thine own pleasure, nor speaking thine own words, I will cause thee to ride upon the high places of the earth.—ISA. 58:13, 14.

We have made lies our refuge, and under falsehood have we hid ourselves. ISA. 28:15.

"These decisions were made and have been carried out by the founders and owners of this institution, because they have always tried to govern their actions by their interpretation of the effect upon the public morals. As their example is followed by many merchants, they have striven to mold their policies along the highest ethical lines.

"Marshall Field & Co. feel that the fact that they do not commercialize Sunday makes for better citizenship."

If the policy adopted by this firm

of not only refusing to advertise in the Sunday papers, but of even lowering the curtains of their great show windows from Saturday night until Monday morning, in order that they might not be an advertisement of the firm, was generally carried into effect, what a marvelous change would take place throughout this country.

The Sunday newspaper is an overgrown production of late years. We believe that in its present size it is a distinct disadvantage to the best interests of the newspapers of the country. If modern conditions demand that the world shall on Sunday have some of the news of the preceding 24 hours, a condensed presentation through a Sunday morning paper would certainly be less objectionable than the stuff which is now furnished in Sunday papers, with their 30 and 40 and 50 and 60 pages of matter. It is very largely to the Sunday paper that the shortage of news paper is due, and we believe that the publishers of the great daily papers of the big cities of the country would be serving their own best interests and the country at large if they would reduce by one-half or two-thirds the size of their Sunday papers. And so far as advertising is concerned, we believe that the statement of Marshall Field & Co. as to their views in regard to the matter will awaken a wide-spread interest among many other business men.

The part that took hold of me particularly was in regard to Sunday papers. Again and again have I decided that I could not afford to waste my time (especially since I am now past 80 years, and my eyesight gives some symptoms of failing) in reading the Sunday dailies or anything of that class. In fact, I made the decision years ago; but every little while something has come up that has caused me to break my promise. (Of course, I made the promise to myself.) When, years ago, I was so much interested in flying-machines (I think it was the time when they had the great World's Fair in St. Louis), somebody sent me a part of a Sunday daily describing at length a new flying-machine on exhibition at the great fair. The whole thing was pictured out with the name and resi-

dence of the humble inventor who built it. It performed astonishing feats, and did not cost much over \$100. I may not have got my statements just right, as it was so long ago. Well, I was so much interested that I made full investigation. How do you suppose it turned out? No such machine was exhibited at the exposition. No such man invented a flying-machine. It was just a built-up yarn, picture and all. Now just imagine the publishers of a daily paper telling somebody, without any scruples of conscience, to go to work and make a picture and write it all up in order to create an excitement, draw people to the fair, and help the newsboys to sell their papers.

In 1917 one of our good friends, knowing I was a "potato crank," sent me a clipping from a Sunday daily picturing a potato-pen and giving a full description of how a certain man in Kansas City, Mo., grew over 40 bushels of potatoes in a bed about the size of a dining-table. The name and address and full particulars, backed by a circular from a great Coal Co., induced me to investigate. I found the man seemed honest and straight, and I gave the whole thing space in Gleanings—page 559, July, 1917. I did not build a potato-pen; but my next-door neighbor went to considerable expense in building one, and was going to start *two more*, when I succeeded in getting him to hold on. I had enough good sense to refer the matter to Director Thorne of the Ohio Experiment Station, and he declared at once that the whole thing was a fake—an utter impossibility, and I published his letter in connection with the article. The Rural New-Yorker has lately declared that hundreds and maybe a thousand such pens were built all over the country, and not one of them was a success; and that the greater part of them did not give back *as much seed as was planted*.

Occasionally a Sunday daily is deposited on my doorstep; but of late it goes into the waste basket, and I promptly inform the newsman that I have no use for a Sunday daily. My sons and sons-in-law do not quite agree with me—at least not all of them; and occasionally I see my grandchildren wasting their time Sunday mornings in looking at the pictures. I call them low-lived pictures—that is, the average picture in the Sunday daily. Once in a while grandpa is criticised because he does not enjoy jokes. My good friends, you who think so are quite mistaken. I do enjoy a joke as much as any person, I think—that is, where they are harmless jokes and jokes that are likely to do good. One of our Florida papers lately suggested that the California

"earthquake bumps" of a recent date were the result of prohibition. Such a joke I greatly enjoy; and I think this particular joke will bear good fruit, because it is just about as reasonable as some of the objections that the wets are bringing forward.

Another Florida paper, in speaking of the wonderful effects of their Florida climate, relates that at a test of athletic strength recently a lively miss of only 94 (?) took the first prize. This test of physical strength was in *climbing trees*; and the 94-year-old woman took the prize against all competitors. Let us now get back once more to the Sunday newspaper.

You all know about the paper shortage; and some valuable rural periodicals, I believe, have ceased publication because they could not get paper. The Record suggests that if our great, heavy, bulky, Sunday dailies could be stopped this one thing alone would effect a great saving in paper. Well, a saving in paper is certainly desirable; but the saving in morals, especially among our children, is of tremendously *greater* importance than the saving of paper. What do you think the impression probably may be on a child twelve years old, when he comes to read about such things as the flying-machine and the potato-pen I have just mentioned? When this child afterwards finds out the truth about it he will begin to suspect untruth in everything.

Now, there is one thing more the Record did not mention; and it is not only the Sunday papers, but the weekly papers that are guilty. Many of our advertisers—especially ungodly advertisers—seem to take it for granted that nobody will look at their advertisement unless there is some display of nude women, or *women's legs*, to put it in plain and square English; and it is not only the advertising pages but the reading pages, for there seems a notion that the paper will not sell unless there is some such immodest display of some good-looking woman. In fact, it has seemed to me that of late they were racking their brains to discover some plausible pretext or excuse for exhibiting nude women. It is right and proper for girls and women to go in bathing in a proper manner as well as for men; but what earthly reason can there be for giving these things place *in print*?

There has been considerable said of late in regard to the lack of attendance at public worship; but our good pastor down in Florida suggested that quite a few professing Christians stayed away because they got interested in the Sunday daily. In regard to the waste of time, I think I have mentioned that Charles M. Sheldon, author



of "In His Steps," is now one of the editors of the Christian Herald. In their issue for July 17 he starts what he calls "Helps to Daily Living." I will give you his directions for Monday and Tuesday:

Monday.—Going to tell the truth and be good-natured all day, and when night comes thank God that I have been able to work and am not a cripple nor an invalid.

Tuesday.—Planning to skip some of the stuff in the papers that is not worth knowing, and find time to read or learn some good thing that I can quote to a friend.

A good many years ago the inimitable Josh Billings asked, "What's the use of knowing so much when so much you know is not true?" I think that will apply most emphatically to what we find in our Sunday dailies. Some of you may say that I am putting it too strong—that notwithstanding the bad which I object to, there is a lot of good in the Sunday daily. But even if this is true, would not the world be better off, all things considered, without any Sunday daily? The clipping I have given from the Record tells us that the Marshall Field Co. is the largest commercial firm in America. Would this have been the case were it not true in regard to their strict ideas of remembering the Sabbath day to keep it holy? I think it must have been something like 70 years ago when my mother taught me a little verse running something like this:

A sabbath well spent brings a week of content,

With body refreshed for the morrow;

But a sabbath profaned, whatever is gained,

Is a sure forerunner of sorrow.

Let us consider this matter of the "flying-machine" a little more fully. Suppose the manager or one of the managers of the great World's Fair should look about him and hunt up somebody with sufficient skill, but utterly devoid of conscience, to undertake what he wanted. He might say to him, "You write this thing all up, and then get up in some way the most plausible picture of a flying-machine, no matter whether any part of it was ever in existence or not. It will pull a crowd to the fair and help sell the daily newspapers."

Now, I do not know whether the editors of these Sunday papers knew the whole thing was a downright falsehood and fabrication or not; but while thinking the matter over it occurred to me that the grand old prophet Isaiah had something to say somewhere of such people as we have been considering. You will find part of it in our third text. With prohibition and other good things that are coming fast and thick, is it not about time that there must be a sharper distinction drawn between truth and falsehood? For almost if not quite 20

years I fought, and at times almost single-handed, that humbug toy called "Electro-poise." After thousands of invalids had wasted their hard earnings our Government finally intervened. The inventors claimed that it was an invention that should be placed alongside of the X-ray and the wireless telegraph. But the whole thing from beginning to end was like the picture of the flying-machine and the potato-pens.

#### THE NEW SWEET CLOVER AND STABLE MANURE VERSUS CHEMICALS.

Last fall I mentioned making a little bed in our Ohio garden with a heavy dressing of old well-rotted stable manure and a heavy application of lime, both well chopped and raked into our Medina clay soil. Then I sowed the new clover seed. I wanted to see if too much lime would do any harm. It did no harm at all; the plants were up in three days, dark green in color, and grew vigorously until cold weather came. Well, a year ago here in Florida I made a little bed  $2\frac{1}{2} \times 10$  feet, and to get good strong plants for transplanting I raked in one-half pailful of potato fertilizer. We can't get stable manure here; no one has any to sell. It killed almost every seed. This winter I tried again, and as goat manure is much used here, I thought surely that would be O. K.; but, "oh, dear me," it killed all the seeds except some at one end of the bed where Wesley probably didn't get so much of the "goat stuff." Not to be bluffed again, I sent Wesley up and down the highway with a great big pail and a little shovel, gathering up the droppings of the mules and horses. It was well pulverized and then raked in a bed of the size mentioned. In  $2\frac{1}{2}$  days (only 60 hours) the beautiful dark green little clover plants were in bright evidence all over the bed. Of course we raked in plenty of lime, as I did in Ohio. Well, now comes the question, is the goat manure we got in bags (\$2.00 for 100 lbs.) *all* goat manure, or do they put in chemicals or something else (to make it go further?); who can answer? I don't recall ever before having seen seeds of any plant come up in 60 hours.

#### BURBANK'S EXPERIENCE WITH THE NEW SWEET CLOVER.

Mr. A. I. Root, Bradentown, Fla.

I write to tell you about the annual white clover seed which you sent me. The 45 seeds which you sent produced 42 plants, most of which stand six to seven feet in height and are full of bloom and producing seed abundantly. However, these plants offer a great opportunity for a plant improver, as they vary very greatly in size, and one of them has not even shown a bloom yet, tho' all the rest have.

I think you must greatly enjoy your trip overland by automobile to Florida, and most sincerely hope that you will arrive in the best of health and full of life. Here's a handshake from over the mountains.

Luther Burbank.

Santa Rosa, Calif., Nov. 4, 1920.

## Classified Advertisements

Notices will be inserted in these classified columns for 30c per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

### REGULAR ADVERTISEMENTS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued when they are in good standing.)

Noah Bordner, J. F. Moore, Adam Kalb, R. C. Wittman, H. F. Williams, E. L. Lane, W. M. Peacock, Foster Honey & Merc. Co., Chas. Israel Bros. Co., S. Rouse, A. J. Heard, C. H. Cobb, Luther Burbank, Livingston Seed Co.

### HONEY AND WAX FOR SALE.

FOR SALE—Clover and buckwheat honey in 60-lb. cans. Bert Smith, Romulus, N. Y.

FANCY clover honey in 60-lb. cans. Sample, 15c. Jas. Hanke, Port Washington, Wisc.

FOR SALE—White clover and basswood blend honey in new 60-lb. cans, two in case. Sample 20c. Geo. M. Sowarby, Cato, N. Y.

BEST offer takes 25 cases, 2 60-lb. tins to case, alfalfa extracted. F. O. B. Manzanola, Colo. Seward P. Stanley.

FOR SALE—Well-ripened, thick and rich white-aster honey in 120-lb. cases at 18c f. o. b. Brooksville, Ky. Sample 25c. H. C. Lee, Brooksville, Ky.

For best table honey try a case of Weaver's sweet clover Spanish needle blend, none better. Price 18c in 60-lb. cans. Joe C. Weaver, Cochrane, Ala.

FOR SALE—2000 lbs. choice clover extracted honey at 20c per lb. f. o. b. Merritt. J. H. Corwin, Merritt, Mich.

FOR SALE—Choice clover extracted honey, \$21.50 per case of two 60-lb. cans. For large quantities, write for price. J. D. Beals, Oto, Iowa.

FOR SALE—Finest Michigan basswood and clover honey, well ripened, and of good flavor, put up in 60-lb. cans. A. S. Tedman, Weston, Mich.

FOR SALE—Finest quality extracted buckwheat honey in 60-lb. cans, two in case. Charles Sharp, Romulus, N. Y.

FOR SALE—Clover and buckwheat extracted honey. Well ripened. Put up in new 60-lb. cans and 5 and 10-pound pails. H. B. Gable, Romulus, N. Y.

FOR SALE—Extra choice extracted white clover honey, put up in new 60-lb. cans and 5-lb. pails. Sample, 20c, same to apply on first order. David Running, Filion, Mich.

FOR SALE—Buckwheat-red clover blend honey at 17c a lb. and fine white clover and basswood honey at 22c a lb. in new 60-lb. cans, two to the case, f. o. b. here. Albert Borning, Hayts Corner, N. Y.

HONEY FOR SALE—Immediate N. Y. shipments, clover or sage qualities: White grade at 18c lb. or light amber grades at 16c per lb. Two 60-lb. cans in case. Light amber West Indian grade, 90c per gallon (50-gal bbls.). All f. o. b. New York City. Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE—1 ton buckwheat-aster honey in 60-lb. cans. What am I offered? 1000 lbs. clover-basswood in 5-lb. pails, \$1.50; wholesale, 25c lb. H. S. Ostrander, Mellenville, N. Y.

FOR SALE—White clover honey, almost water white. Put up in new 60-lb. tin cans, two to the case. Write for prices. D. R. Townsend, Northstar, Mich.

FOR SALE—Finest Michigan raspberry, basswood, and clover honey in 60-lb. cans, 20c per pound. Heartsease, aster, 18c. Free sample. W. A. Latshaw Co., Clarion, Mich.

FOR SALE—White honey in 60-lb. cans, sample and price on request. Also white clover comb, 24 sections to case. The A. I. Root Co., Inc., 23 Leonard St., New York City.

Extracted honey. New crop white sage, white orange 20c a lb., L. A. alfalfa 15c, white Haitian 12c, amber 11c, Chilian 10c. Beeswax 30c. Walter C. Morris, 105 Hudson St., New York City.

FOR SALE—10,000 lbs. A1 quality white sweet clover honey, in new 60-lb. cans. Will sell in quantities to suit. Sample free. W. D. Achord, Fitzpatrick, Ala.

FOR SALE—Clover, basswood or buckwheat honey, comb and extracted, by the case, ton, or carload. Let me supply your wants with this fine N. Y. State honey. C. B. Howard, Geneva, N. Y.

FOR SALE—3000 lbs. of well-ripened clover honey at 20c per lb.; 12,000 lbs. of No. 1 white aster honey at 15c per lb., put up in 60-lb. cans f. o. b. Brooksville, Ky. Sample 25c. W. B. Wallin, Brooksville, Ky.

FOR SALE—Well-ripened extracted clover honey, 20c per pound; buckwheat and dark amber, 17c, two 60-lb. cans to case. Clover in 5-lb. pails, \$1.25 per pail; buckwheat and amber, \$1.00 per pail, packed 12 pails to case, or 30 to 50 pails to barrel. H. G. Quirin, Bellevue, Ohio.

FOR SALE—Clover extracted honey of unsurpassed quality; new cans and cases, prompt shipment. You will be pleased with "Townsend's quality" extracted honey. Not a single pound extracted until long after the flow was over; thus the quality. Would advise intending purchasers to order early, as we have only a half crop. Address with remittance. E. D. Townsend & Sons, Northstar, Mich.

### HONEY AND WAX WANTED.

BEEWAX WANTED—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED—Bulk comb, section, and extracted honey. Write us what you have and your price. J. E. Harris, Morristown, Tenn.

BEEWAX wanted. Old combs (dry) and cappings for rendering. Also wax accepted in trade. Top market prices offered. A. I. Root Co. of Iowa, Council Bluffs, Iowa.

WANTED—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, O.

WANTED—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax, and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address, so we can identify it immediately upon arrival, and make prompt remittance. The A. I. Root Co., Medina, Ohio.



**OLD COMBS WANTED**—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings, or slungum. Send for our terms and our new 1921 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

### FOR SALE.

**HONEY LABELS**—New designs. Catalog free. Eastern Label Co., Clintonville, Conn.

**FOR SALE**—200 10-fr. comb supers. Good as new. J. A. Everett, Edgewater, Colo.

**FOR SALE**—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

**ROOT'S goods** at Root prices. A. W. Yates, 3 Chapman St., Hartford, Conn.

**FOR SALE**—One-pound jars in two-dozen cases, ten cases or more at \$1.75 per case, f. o. b. factory. A. G. Woodman Co., Grand Rapids, Mich.

**FOR SALE**—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

**ROOT'S BEE SUPPLIES**—For the Central Southwest Beekeeper. Beeswax wanted. Free catalog. Stiles Bee Supply Co., Stillwater, Okla.

**FOR SALE**—Comb foundation which satisfies the most particular beekeeper. Wax worked at lowest rates. E. S. Robinson, Mayville, N. Y.

**PUSH-IN-THE-COMB CAGES**—Quickest and safest way to introduce queens. 50c postpaid. F. R. Davis, 203 Oak St., Weehawken, N. J.

**FOR SALE**—1 saw-mandrel and 2 12-in. saws, cross and rip. New. I will take \$12.50. Never been used. Write Guy B. Williamson, Center Junction, Iowa.

**FOR SALE**—New and used bee supplies at a great bargain, or would exchange for registered hogs, Durco Jerseys or Poland Chinas. J. O. Gorman, Glasgow, R. D. No. 4, Ky.

**FOR SALE**—To reduce stock, crates of 96 one-gallon cans, with bails and three-inch screw caps, at \$17.50 per crate f. o. b. Grand Rapids. A. G. Woodman Co., Grand Rapids, Mich.

**FOR SALE** or on shares, 14 apiaries, one or all. Healthful location with American school and church in town, on stone road. Last crop over 40 tons. M. C. Engle, Herradura, Cuba.

**PORTER BEE ESCAPE** save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies. R. E. & E. C. Porter, Lewistown, Ills.

**FOR SALE**—Good second-hand double-deck comb-honey shipping cases for  $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$  sections, 25c per case, f. o. b., Cincinnati. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

**FOR SALE**—50 10-frame supers or brood-chambers and inner covers, 10 comb-honey supers, queen-excluders and Alexander feeders, all for 10-fr. hives. H. Shaffer, 2860 Harrison Ave., Cincinnati, Ohio.

**FOR SALE**—Root foundation mill  $2\frac{1}{2} \times 6$ -inch hexagon, thin super, excellent condition, price \$40. Also nearly new Newhouse bear-trap, No. 5, \$8.00. Edward R. Wilson, Pipersville, R. D. No. 1, Pa.

**THE DOMESTIC BEEKEEPER**, under new ownership, now reaches every interest, contains exceptionally good articles, timely information, all the news worth printing. Monthly, \$1.50 per year. Sample copy for the asking. The Domestic Beekeeper, Lansing, Mich.

**FOR SALE**—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

**FOR SALE**—8-fr. hives with frame and super, flat cover, \$1.00 each, in good condition; some painted, used but little. No disease. Cannot keep so many bees as I did. Martin Fink, Cold Spring, Minn.

**FOR SALE**—20 Simplicity hive bodies, painted, some with new frames and metal-roof covers and bottom-boards; 11 new Simplicity supers; 27 dovetailed supers. All as good as new. \$37.00 takes the lot. F. L. Stearns, No. Bennington, Vt.

**FOR SALE**—500 pounds of Dadant's light brood foundation for Hoffman frames, put up in boxes holding 50 pounds net. This foundation is in the best of shape, the same as I received it. I will not accept orders for less than one box. Price, 75c per pound. M. E. Eggers, Eau Claire, Wisc.

**BEEKEEPERS' SUPPLIES**—We manufacture hives, brood frames, etc., and sell a full line of beekeepers' supplies. Everything guaranteed to fit, and anything not satisfactory may be returned. Prices are the lowest. Send a list of your wants. We save you money. M. E. Ballard, Roxbury, N. Y.

**FOR SALE**—About 12,000  $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$  dovetailed white poplar sections; lock-corner machine with two sets saws; and lot of bee hive stock suitable for toymakers' use. All at So. Newbury, Vt., and will be sold low to close out. C. L. C. Davis, 913 Sante Fe, Atchison, Kan.

**FOR SALE**—50 new two-story ten-frame hives, with metal covers, inner covers, reversible bottoms and full sheets Dadant's medium brood foundation. Hives all nailed. Root make. Foundation not fastened. What do you offer for the whole lot, or any part of same. Address to The Blue-hive Apiaries, Meyer Bros., Prop., Preston, Iowa.

**FOR SALE**—Eight-frame standard equipment consisting of 40 dovetailed hive bodies at 75c; 30 shallow dovetailed extracting supers, drawn comb, \$1.75; 22 reversible bottoms, 60c; 22 excelsior covers, 70c; 17 wood-and-wire excluders, 60c; 9 escape boards (no escapes), 30c, nailed and painted. No disease. Everett P. Bradley, Mt. Holly, N. J.

**FOR SALE**—250 10-fr. supers,  $4\frac{1}{4} \times 1\frac{1}{2}$  sec., 5 for \$6.25; 30 10-fr. supers with sections, 5 for \$10.00; 20 8-fr. hives, new frames, 5 for \$15.00; 40 8-fr. supers,  $4\frac{1}{4} \times 1\frac{1}{2}$  sec., 5 for \$5.00; 50 Alexander feeders, 10 for \$2.50. Above goods all Root make and in excellent condition. Some like new. Ross B. Scott, La Grange, Ind.

**FOR SALE**—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Bee-ware. Our new price list will interest you. We pay 38c cash, and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

**FOR SALE**—10 10-frame nailed brood bodies, \$10.00 with bottoms; 50 shallow extracting supers, \$20.00; 500 shallow frames, part nailed and wired, \$22.50; 120 brood frames, nailed, \$6.75; 1 four-frame Cowan automatic reversible extractor, \$35.00; 100 5-lb. honey pails, \$8.00; 20 frames for rearing queens, \$1.50; 1 large honey knife, \$1.45; \$115 takes everything f. o. b. 29 queen-excluders, \$14.00. Everything brand-new, except excluders and queen frames. Want a second-hand typewriter. T. H. Arnold, Brockwayville, Pa.

### POULTRY

S. C. Light Brown Leghorn Cockerels, the best show and laying strain, \$3.00 and up; also baby chicks. H. M. Moyer, Boyertown, R. D. No. 3, Pa.

## AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the AUTOMOBILE DEALER AND REPAIRER; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. \$1.50 per year. 15 cents per copy. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

## WANTS AND EXCHANGES.

WANTED—Several bee-outfits (preferably near home). H. G. Quirin, Bellevue, Ohio.

WANTED—A good honey location and bee outfit. Delbert Lhommedieu, Colo, Iowa.

WANTED—Second-hand typewriter in good condition. Carl H. Dohrman, Holt, R. D. No. 1, Minn.

WANTED—Second-hand 10-frame empty hives. Will pay cash. Dr. R. B. Smith, Villisca, Iowa.

WANTED—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED—To exchange bees and queens second to none for a 30-30 Winchester repeating rifle, and a novice or other two-frame honey-extractor. S. Whann, Polk, R. D. No. 2, Pa.

WANTED to buy, or rent for season of 1921, bee-yard in California, near San Jose or San Bernardino Valley preferred. Lloyd Peabody, 300 Globe Bldg., St. Paul, Minn.

WANTED—200 or less colonies of bees for spring delivery. Any style hive or box. Remembering 10c honey is in sight for 1921. A. W. Smith, Birmingham, Mich.

WANTED—Second-hand Buckeye double-walled hives made by A. I. Root Co., without combs or supers, also Cowan rapid reversible extractor that is in perfect condition. Chas. C. Mackay, 147 Asheland Ave., Asheville, N. C.

## BEES AND QUEENS.

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

FOR SALE—Italian queens and nuclei. B. F. Kindig, E. Lansing, Mich.

Hardy Italian queens, \$1.00 each. W. G. Lauver, Middletown, Pa.

GOLDEN Italian queens, untested, \$1.50 each; dozen, \$14.00. E. A. Simmons, Greenville, Ala.

FOR SALE—1921 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

When it's GOLDEN, it's Phelps. O. W. Phelps & Son, 3 Wilcox St., Binghamton, N. Y.

FOR SALE—Bright Italian queens, \$1.50 each; \$14.00 per doz. Ready after April 15. T. J. Talley, Greenville, R. D. No. 3, Ala.

FOR SALE—40 colonies for spring delivery as early as weather will permit. No disease. J. Ford Sempers, Aikin, Md.

FOR SALE—12 standard colonies, painted, wired frames, Root strain, requested. Good condition. Price in cellar, \$10.00 each. O. C. Bobb, Sinking Springs, Ohio.

PACKAGE BEES and PURE ITALIAN QUEENS. Booking orders now for spring delivery. Circular free.

J. E. Wing, 155 Schiele Ave., San Jose, Calif.

Business-First queens, untested, \$1.50 each; select untested, \$1.75; tested, \$2.25; select tested, \$2.50. Safe delivery guaranteed, orders filled promptly.

M. F. Perry, Bradentown, Fla.

FOR SALE—Three-banded Italian queens, untested, \$1.50 each; 6, \$7.50; 12, \$14.00. Select untested, \$1.75 each. Satisfaction guaranteed. W. T. Perdue & Sons, R. D. No. 1, Ft. Deposit, Ala.

PACKAGE BEES and NUCLEI with ITALIAN QUEENS, for spring delivery. No disease in our yards. Write for prices and terms.

The Allenville Apiaries, Allenville, Ala.

FOR SALE—A. I. Root Co. strain of leather colored Italians. Virgins only, May to October. 1, 75c; 10, \$7.00; 100, \$65.00.

F. W. Stowell, Otsego, Mich.

BEES BY THE POUND — Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas. E. B. Ault, Prop.

Three-banded Golden queens. Quality breeding and mating our motto. Safe arrival guaranteed. Circular free. Dr. White Bee Co., Sandia, Box No. 71, Texas.

GOOD stock, plus experience in shipping bees make it profitable to buy package bees or nuclei. Write for my new circular.

R. V. Stearns, Brady, Texas.

1921 price of bees and queens from the A. I. Root Co. leather-colored stock. 1 lb. bees with queen, \$5.00; 2 lbs. \$7.50. Untested queens, \$1.50 each; dozen, \$15.00. Safe arrival. Orders booked now. Greenville Bee Co., Greenville, Ala.

We are now booking orders for early spring delivery of two and three frame nuclei, with untested or tested queens. Write for prices and terms. We also manufacture cypress hives and frames.

Sarasota Bee Co., Sarasota, Fla.

FOR SALE—50 colonies Italian bees in 8-frame new hives. On full sheets foundation and wired equipment. All good condition. All goes together for \$10.00 per colony. No disease.

Lee Elliott, Greenview, Ills.

FOR SALE—For May and June delivery, 2 lbs. bees and untested Italian queen, shipped on comb of stores at \$6.75. Safe arrival and satisfaction guaranteed. No disease. Order now.

Ross B. Scott, La Grange, Ind.

WE believe we have the best Italian queens obtainable. Our new system is working wonders. Book your order now for 1921. Untested, \$1.50; tested, \$3.00; virgins, imported mothers, 50c.

F. M. Russell, Roxbury, Ohio.

WE wish to thank our many customers for their very liberal patronage the past season and ask them to look in the March number for our 1921 announcement. C. W. Phelps & Son, Binghamton, N. Y., Dealers in Golden Queens.

FOR SALE—Root's strain of golden and leather-colored Italian queens, bees by the pound and nuclei. Untested, \$1.50 each; select untested, \$2.00; tested, \$2.50 each; select tested, \$3.00. For larger lots write. Circular free.

A. J. Pinard, 440 N. 6th St., San Jose, Calif.

FOR SALE—Three-band Italian bees and queens, ready June 1. Fine stock, free from disease and guaranteed to please you. (One grade) select untested queens, \$1.50 each; 6, \$8.00; 12, \$15.00; 50, \$60.00. Nuclei, \$3.00 per frame, Hoffman; bees, \$3.00 per pound. A. E. Crandall, Berlin, Conn.



**SHE-SUITS-ME** queens, season of 1921. Untested Italians, \$2.00 each, 10 or more, \$1.75 each, from May 15 to June 15. After June 15, \$1.50 each, up to nine queens. 10 to 24 queens, \$1.40 each. 25 and up, \$1.25 each.

Allen Latham, Norwichtown, Conn.

**FOR SALE**—Three-band leather-colored Italian bees and queens, two-pound packages only. Shipping season from April 15 to May 20. Safe arrival and satisfaction guaranteed. No disease. Order early if you wish prompt delivery. Write for price list.

J. M. Cutts, Montgomery, R. D. No. 1, Ala.

**FOR SALE**—Bees and queens, 1 lb., \$3.00; 2 lbs., \$4.50; 3 lbs., \$6.00. Tested three-banded Italian queen, \$2.00; untested, \$1.50. If queens are wanted, add price. Shipment May 10 to June 10. All bees shipped on a standard frame with honey and brood. No disease. All dead bees will be promptly replaced.

L. C. Mayeux, Hamburg, La.

WE are now booking orders for 3-lb. packages for May delivery, 3-lb. package with untested queen, \$7.00; 3-lb. package with tested queen, \$8.00. Orders booked as received. Safe delivery, satisfaction, and no disease guaranteed. All bees shipped on a comb of brood and honey. 50 per cent down will book your order. J. L. St. Romain, White Clover Farm & Apiary, Hamburg, La.

**FOR SPRING DELIVERY.** One good Italian queen, 1 Hoffman standard frame emerging brood, 1 pound live bees, price complete, \$6.50 f. o. b. Bordeloville. Queen introduced, mated, laying en route; loss in transit replaced if noted on express tag by agent; no disease in State. References given. Orders booked, May delivery, one-fifth cash; orders filled in rotation. Jess Dalton, Bordeloville, La.

**FOR SALE**—Pure Italian queens, Golden or leather-colored, packages and nuclei; 1 untested queen, \$1.50; 6, \$7.50; 12, \$13.50; 50, \$55.00; 100, \$100; virgins, 50c each; packages 24 and under, \$2.25 per pound; 25 and over, \$2.00 per pound; nuclei, 1-frame, \$4.00; 2-frame, \$6.00; 3-frame, \$7.50; queens extra. One-story 10-frame colony with queens, \$12.00. Golden Star Apiaries, R. 3, Box 166, Chico, Calif.

**QUEENS**, three-banded Italians only. Now that the booking season for nuclei has passed, and, while I have a large number of orders for nuclei, I shall not be too busy with these to fill your orders for queens. 1 untested for April, \$1.25; 12, \$12.50; 1 untested for May 1 to June 1, \$1.00; 12, \$10.00. I ship no queens after June 1; weather is too hot. Discount on large orders. Safe arrival guaranteed.

L. R. Dockery, Carrizo Springs, Texas.

**FOR SALE**—1921 prices on nuclei and queens. 1-frame nucleus, \$3.00; 2-frame nucleus, \$5.00; 3-frame nucleus, \$6.50, without queens, f. o. b. Macon, Miss. 5 per cent discount in lots of 25 or more. Untested queens, \$1.25 each; \$15.00 per doz.; tested, \$2.00 each; \$22.00 per doz. No disease. Inspection certificate with each shipment. Safe arrival and satisfaction guaranteed in U. S. Queens sold only with nuclei.

Geo. A. Hummer & Sons, Prairie Point, Miss.

Vigorous Italian queens, leather-colored, three-banded stock. Bees in packages, 2 pounds, \$6.00; 3 pounds, \$7.50, queens extra. Price of queens, untested, \$2.00; tested, \$3.00; full colonies of bees, queens, and brood, in ten-frame standard Langstroth hives supplied with self-spacing frames and combs built on full sheets of comb foundation. \$22.00 each. All f. o. b. here. Terms: Deposit of 10 per cent with order, balance payable just prior to shipment. Shipments are made during May, beginning about May 1, depending upon weather and season conditions. I pay cost of shipping cages. My bees are healthy, and I breed from some of the best three-banded stock obtainable. Safe arrival or money returned. References furnished, if required.

C. M. Elfer, St. Rose, La.

**DAY-OLD QUEENS**—Disease-resistant Italians. Arrival guaranteed in U. S. and Canada. High quality, low price, satisfaction. Safe introduction described in circular. Order early. Prices, April 15 to Sept. 30: 1, 75c; 12, \$7.20; 100, \$60.

James McKee, Riverside, Calif.

**FOR SALE**—Golden queens for 1921. Untested queens for delivery from April 20 to July 1, \$1.50 each, or 6 for \$8.00. For 100 lots write for prices. I guarantee safe arrival and reasonable satisfaction, and all orders and inquiries will be answered promptly. R. O. Cox, Luverne, R. D. No. 4, Ala.

## HELP WANTED.

**WANTED**—An up-to-date beekeeper for 1921.

R. S. Beckett, Rifle, Colo.

**WANTED**—A live young man to help me during season of 1921. Allen Latham, Norwichtown, Conn.

**WANTED**—Beekeeper to work in commercial orchard and to help extract honey. Permanent job and part honey crop. House furnished.

H. W. Funk, Normal, Ills.

**WANTED** for the season of 1921 an experienced queen-breeder. State experience had, reference, age, height, weight.

W. J. Forehand & Sons, Ft. Deposit, Ala.

**WANTED**—Two young men of good habits, to work with bees and on farm coming season. Good opportunity to learn. 11 apiaries.

N. L. Stevens, Venice Center, N. Y.

**WANTED**—Experienced and inexperienced help in large bee business. Begin work about March 1 and continue year around to right parties.

M. E. Ballard, Roxbury, N. Y.

**WANTED**—First-class county bee inspector, one who knows the business thoroughly. Answer giving particulars of your experience and say what salary you want. Work in California.

C. P. Dandy, El Centro, Calif.

**WANTED**—Experienced bee man, capable of taking full charge of five apiaries when necessary. Employment six months, chance of right man becoming permanent manager and obtaining interest in business. Write immediately.

Seward P. Stanley, Manzanola, Colo.

**WANTED**—A willing and reliable, clean young man to assist with bees in outyards. Will give you my experience and wages. State experience you have had, age, weight, height, and wages expected. Board and lodging furnished. Start work about March 1.

A. L. Cogshall, Groton, N. Y.

**HELP WANTED**—Will give experience and fair wages to active young man not afraid of work, for help in large, well-equipped set of apiaries for season, starting in April. State present occupation, weight, height, age, and beekeeping experience, if any. Morley Pettit, The Pettit Apiaries, Georgetown, Ont.

**WANTED**—Two young men, able-bodied, willing to work, clean in body and mind, who want to learn beekeeping and are willing to exchange faithful services for instruction from a man with almost 40 years of extensive experience in beekeeping, board and some financial remuneration. Have 12 apiaries. R. F. Holtermann, Brantford, Ont., Can.

**WANTED**—Capable assistant for system of 8 apiaries and growing sales business. Position open April 1. Opportunity for advancement and permanent position for right party. Man with some experience and knowledge of machinery and automobiles preferred. Wilcox Apiaries, Odessa, N. Y.

## SITUATIONS WANTED

WANTED—A position by an experienced apiarist in the southern States. G. F. Dansinger, Olean, N. Y.

SITUATION wanted by experienced bee man. Good references. State conditions in first letter. Glenn Stonex, Fremont, Mich.

WANTED—Work in apiary in Wayne County, if possible, nine days out of every two weeks. Address Kenneth Sharpe, Wolcott, N. Y.

WANTED—What good proposition have you? I am a middle-aged man with A No. 1 references, expert in beekeeping and general farming, fruit, etc. Employed for the last five years on same place like working manager. I have been working for the best beekeepers in Minnesota. Driving all kinds of cars and for present studying in automotive and tractor school in Los Angeles. If interested, write Stephen Mioch, 1107 W. 41st Pl., Los Angeles, Cal.

## Books and Bulletins

### *Beekeeping in the South.*

This is the title of a new book by Kenneth Hawkins, published by The American Bee Journal. The book contains 120 pages and is well illustrated: The honey plants of the various regions of the South are discussed, as well as the beekeeping conditions found at present in each of these regions. The book contains valuable information for beekeepers in the southern States as well as for northern beekeepers who contemplate going south to keep bees.

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69 varieties. Also Small Fruits, Trees, etc. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 25c. Descriptive catalog free. LEWIS ROESCHE, Box L, Fredonia, N. Y.

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1 to 4 inclusive \$3.00 ea.  
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By buying a large quantity of the 16-oz. round jar which we have sold for a good many years and has proved to be so satisfactory, we were able to get a large stock of these, put up two dozen in reshipping cases, from the manufacturers at a very low figure. So long as the present stock lasts we are offering them at the special low price of \$1.70 per case, \$1.65 per case in lots of 10; \$1.60 per case in lots of 25 or more. These prices are f. o. b. Council Bluffs, Iowa. Send all orders direct to the A. I. Root Company, Medina, Ohio.

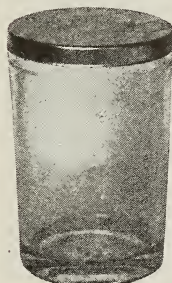
#### 9-ounce Taper Jar



Since our first notice of having a surplus stock of 9-oz. taper jars packed two dozen in a case, on hand at our Philadelphia Branch, there has been a steady call for them. We are glad to announce that we still have a small stock of this attractive jar on hand to offer at the exceptionally low price of 85c per case, \$8.00 for 10 cases, \$75.00 for 100 cases. Prices f. o. b. Philadelphia. Send your order direct to The A. I. Root Company, Medina, Ohio.

9-oz. Taper Jar

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6 1/2-oz. Tumbler

We have a surplus stock of 6 1/2-oz. tumblers put up two dozen in a case, including tin tops, at our Philadelphia Branch. The cost of these tumblers has more than doubled in the past three years. We offer for a short time the surplus stock, available at 60c per case, \$5.50 for 10 cases, \$50.00 for 100 cases. Prices f. o. b. Philadelphia. Send your order direct to The A. I. Root Company, Medina, Ohio.

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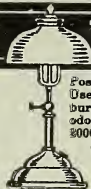
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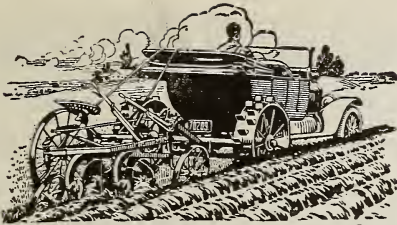
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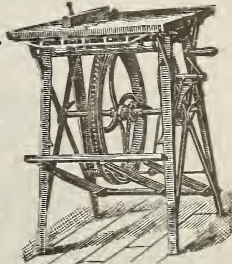
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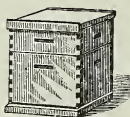
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Fine for windbreaks, hedges and lawn plant-  
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will furnish 3-banded Italian bees and queens:  
Untested queens, \$1.00 each; tested, \$1.50 each.  
One pound bees, no queen, \$2.00. No disease.

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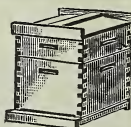
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### Nuclei Will Be Our Specialty.

One frame with queens, \$3.00; 2 frames and queen, \$5.00; one pound with queen, \$2.50; 2 pounds and queen, \$4.00; 8-frame Single-story colonies, \$10.00, F. O. B. Perris.

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We have a man in charge with long experience in bee-shipping. Let us book your orders with 10 per cent with same, balance when bees are wanted. Ask for special prices on large order. Shipping season begins May 10th. Safe arrival and satisfaction.

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When you get a little surplus money, do not hide it in your house where it is in danger of loss by fire or theft, but send it at once by mail to this old, unquestionably safe bank, where it will earn 4 per cent interest.

Your account, in any amount, is cordially invited.

**THE SAVINGS DEPOSIT BANK CO.**  
A.T.SPITZER, Pres.  
E.R.ROOT, Vice Pres. E.B.SPITZER, Cash.  
**MEDINA, OHIO**



## TINS AND GLASS JARS Down in Cost--Order Now for Next Crop Packing. Note Low Prices Subject to Change at Any Date

Following Tins F. O. B. Baltimore Factory. For New York Shipment add 15 per cent extra.

2 1/2-lb. Cans, 2 doz. reshpg. cases, \$1.45 per case net	10-lb. Pails with Handles.
2 1/2-lb. Cans in 100-can crates, \$6.50 per crate net	In 1/2 Doz. cases.....\$1.10 per case net
2 1/2-lb. Cans in 200-can crates, \$11.00 per crate net	In crates of 50.....\$6.70 per crate net
2 1/2-lb. Cans in 500-can crates, \$24.50 per crate net	In crates of 100.....\$12.75 per crate net
5-lb. Pails with Handles:	5-Gal. tins, used, good condition, 2 to
1 Doz. reshpg. cases.....\$1.35 per case net	case.....50c per case
In Crates of 100.....\$8.30 per crate net	5-Gal. tins, NEW, 2 tins to wood case....
In Crates of 200.....\$16.25 per crate net	.....\$1.35 per case

WHITE FLINT GLASS, WITH GOLD LACQD. WAX-LINED CAPS.

F. O. B. Wheeling, W. Va., Fcty., or add 15 per cent for New York City Delivery.

8-oz. Honey Capacity, Cylinder style.....	\$1.50 carton of 3 doz.
16-oz. Honey Capacity, Table Jar style.....	\$1.40 carton of 2 doz.
Quart or 3-lb. Honey Capacity, Mason Style.....	\$1.00 carton of 1 doz.

**HOFFMAN & HAUCK, INC.**

**Woodhaven, New York**

## FOREHAND'S QUEENS--THEY SATISFY, WHY?

Because of 28 years of experimental work, with both queen-breeding and honey-production. With breeding and selecting of imported queens, I have reached a standard which is ideal. Queens as good, but none BETTER. Why experiment? Take advantage of the life experience of my breeders. OUR SERVICE STATION.—We are ready to serve you at all times, whether you desire queens or advice. Let us help you with your bee problems. All questions are cheerfully answered.

I breed three-banded Italians only. Nov. 1st to June 1st.

	1	6	12
Untested	\$2.00	\$9.00	\$16.00
Selected Untested	2.25	10.50	18.00
Tested	3.00	16.50	30.00
Selected Tested	3.50	19.50	36.00

Orders booked now for spring delivery. One-fourth the full amount with order and balance when shipment is desired. Pure mating, safe arrival, and perfect satisfaction guaranteed. Write for circular and large-order discounts. Foreign orders at receiver's risk.

**N. FOREHAND**

**RAMER, ALABAMA**



## THE OLD RELIABLE THREE-BANDED ITALIANS



Booking orders now for 1921. Queens ready April 1st. My Italians are of an exceptionally vigorous and long-lived stock strain of bees. They are gentle, prolific, very resistant to foul brood, and the best of honey-gatherers. I have sold a good many queens to parties who are using them in stamping out foul brood. Orders booked for one-fourth cash, balance before delivery. Will guarantee safe arrival in the United States and Canada. Descriptive circular and price list free.

Prices April, May, and June

July to November

	1	6	12	1	6	12
Untested	\$1.50	\$8.00	\$15.00	\$1.25	\$6.50	\$12.50
Select Untested	1.75	9.00	16.00	1.50	8.00	15.00
Tested	2.50	12.50	24.00	2.25	12.00	22.00
Select Tested	3.00 each			3.00 each		

No nuclei or pound packages of bees for sale.

**John G. Miller, 723 C St., Corpus Christi, Tex.**



## HONEY-BROOK FARM

**TWO & THREE  
LB. PACKAGES  
ITALIAN BEES  
—ALSO THREE-  
BANDED ITAL-**

**IAN QUEENS**—Delivered to you by parcel post. My bees are untiring workers—gentle, prolific, properly priced. Pure mating absolutely guaranteed. Ready for shipping April 10. To be in line let me book your order now. Only ten per cent cash required with order, balance just before you desire shipment. No package bees sent without a queen.

Prices: Two-pound packages, including untested queen, \$6.50. Three-pound package, including untested queen, \$9.00. Twelve or more packages, 25c per package less. Queens: Untested, \$1.50 each, or \$15 per dozen. Tested, \$2.00 each straight. I will pay all postage on package bees and queens. Empty cages to remain my property and to be returned at my expense. Prompt service, safe arrival and satisfaction guaranteed.

**JASPER KNIGHT, PROP.**

**HAYNEVILLE, ALA.**

## Quality Bee Supplies From a Reliable House

¶ Without fear or favor I place my BEE SUPPLIES and SERVICE before you.

¶ It is the small annoyances that often grow into disastrous results. Avoid the so-called "little losses" by using MONDENG'S goods. Quality is first—save time when you put your goods together by getting supplies that are accurately made. Service is next—no delays when bee supplies are ordered from my factory.

¶ I am ready to meet your urgent needs. Send for my latest price-list.

¶ Closing out all Langstroth and Wisconsin hives and supers. Also Langstroth triangular top-bar frames, and eight-frame D. T. supers for 4x5 sections. At cost price, write for quotations.

### Charles Mondeng

146 Newton Ave. N. &  
159 Cedar Lake Road.

MINNEAPOLIS, MINNESOTA.

## Thagard Italian Queens

### Bred For Quality

Booking orders now, ¼ cash with order; balance just before queens are shipped.

April 1st to July 1st

1            6            12

Untested .....\$2.00   \$8.00   \$15.00

Select Untested 2.25   10.00   18.00

Tested ..... 3.00   16.00   28.00

Special prices on 8-10 frame Root Hives of bees, in lots of 10 to 50.

Safe arrival, pure mating, and satisfaction guaranteed. Circular free.

### V. R. Thagard

Greenville, Ala.

## Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant. We are paying higher prices than ever for wax. We work wax for cash or on shares.

### Root Bee Supplies

Big stock, wholesale and retail. Big catalog free.

### Carl F. Buck

The Comb-foundation Specialist

August, Kansas

Established 1899.

## Results Are What Count

The careful beekeeper buys supplies which will produce the desired results at the lowest cost. That is why so many beekeepers are ordering my comb foundation for next season's use. They have found from previous trial that my foundation produces perfect combs at the least expense. Here is what one customer writes after a season's trial:

"You may be interested in my opinion of your foundation.

"I have tested out your foundation, together with several others, as to its uniformity of manufacture, and its adoption by the bees, etc. I did this for my own benefit, as a guide for my future buying. As to adoption by the bees, I find no difference in any make of same grade and age.

"I found your foundation very uniform in quality and trim, your mode of packing as good as any, and with me you have always been as prompt in shipping as the promptest. Then why should I pay any manufacturer more than what you charge?

Yours respectfully,  
J. C. Brasser, Lewiston, N. Y."

Your own wax worked into foundation at lowest rates. Send for price list.

### E. S. Robinson

Mayville, Chau. Co., N. Y.



## Our Food Page—Continued from page 93.

altho it is quite difficult to handle with dough as soft as biscuit dough.

## FRUIT ROLLS

Make the rolls as in the preceding recipe, but in place of the cinnamon and sugar use chopped dried fruits such as raisins, currants, figs, dates, or a mixture of two or more of them.

## SHORTCAKE

Use the standard recipe, increasing the amount of shortening if a rich crust is desired. Roll out half an inch thick, cut the size of a layer cake pan, spread with softened butter, put another round on this, spread with cream and bake in a hot oven. When done, split, spread with the crushed and sweetened fruit, put the other layer on top, spread more fruit on this, and serve at once. Or the shortcake may be baked as individual biscuits, split and spread with the fruit. Instead of fruit the biscuits may be split, buttered, spread with creamy granulated honey, and served with whipped cream, if desired.

## FRUIT PUDDING

Put the desired amount of canned or fresh fruits in an earthen or glass baking dish, put drop biscuits closely over it, and bake until the biscuits are done and lightly browned. Serve with butter or cream or a hard sauce if the fruit is not sweet enough. If slow-cooking apples are used it is well to put them in the baking dish, cover closely, and bake until partially done before putting on the crust.

## BAKED FRUIT DUMPLINGS

Use the standard recipe for cut biscuits, but double the amount of shortening, roll out in a thin sheet, cut in 4-inch squares, put several pieces of drained fruit in the center of each, fold and pinch the corners together and arrange in an oiled baking pan, pour the sweetened fruit juice around them, and bake until lightly browned. If the juice cooks away add a little hot water. There will usually be enough juice for a sauce. This is delicious with stoned prunes, especially when a slice of orange has been cooked with the prunes. Apricots or dried or canned peaches are also very good. Quick-cooking apples may be used with sweet cider which has been additionally sweetened poured around the dumplings.

## STEAMED FRUIT DUMPLINGS

Follow the standard biscuit recipe, using only half the amount of shortening, make dumplings as in the preceding recipe, arrange in an oiled pan without the fruit juice, and steam about an hour.

## PLAIN DUMPLINGS

Follow the recipe for cut biscuits, omitting half the shortening, or a very good dumpling may be made without any shortening. They may be rolled and cut or dropped from the tip of a teaspoon on the

boiling hot stew, covered closely and cooked ten minutes. Serve on a platter with the meat and gravy dipped over them. Or if they are cooked on the top of stewed fruit, serve on individual dessert plates with the sweetened fruit, to which a little butter has been added, poured over them as a sauce.

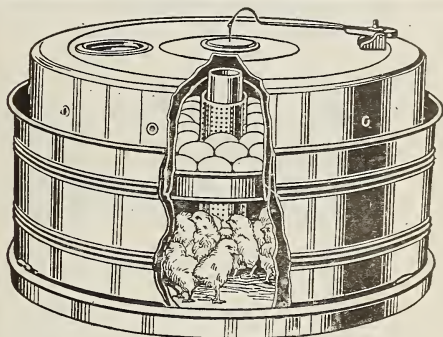
## ROLY POLY PUDDING

Follow the recipe for cut biscuits, omitting half the shortening, roll out  $\frac{1}{4}$  inch thick, spread with jam, roll up, pinch the ends together, place on a greased pan, and steam about an hour. If it is desired to bake it, more shortening should be used.

## MEAT PIE

Arrange cooked meat in a baking dish, cover with thickened stock or gravy, place in oven until heated thru, drop biscuits closely over it, leaving a steam vent in the center, and bake until the biscuits are done and delicately browned. Cut biscuits may be used, if preferred. This is a good way to use left-over bits of meat. Potatoes and onions may be mixed with the meat, if desired, making it a one-dish meal with the addition of fruit or a salad.

All measurements level and flour sifted once before measuring.



## It's Easy to Raise Poultry With Cycle Brooder-Hatchers.

A NEW idea, combining both Brooder and Hatcher in one machine, one lamp serving both purposes. A real "Metal Mother" that will hatch every hatchable egg, and the chicks will be strong, lively, and easy to raise in the brooder compartment.

YOU can use the Cycle either as a Brooder or Hatcher, or both at once. The Cycle is all metal; you can operate it safely in the house or in any out-building. You can see the eggs at all times through the round glass window without lifting the top. And you can turn them instantly with a single movement. The regulator control is very sensitive. A gallon of kerosene will usually carry through an entire hatching.

Just the thing for busy farmers and city enthusiasts. 50-egg and 50-chick size \$11.00. Two for \$20.00.

THE CYCLE HATCHER: Exactly the same as the Brooder-Hatcher, but without the brooding compartment. 50-egg size \$9.00. Two for \$17.00.

WEIGHT: 18 lbs. for parcel post shipment. Postage extra.

CATALOGUE of Hatchers, Brooders, Poultry and Supplies sent free. Send a postal today.

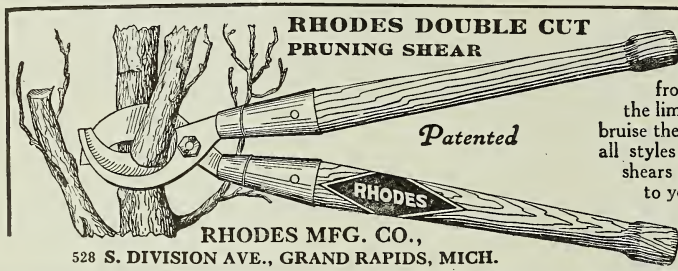
**CYCLE HATCHER COMPANY**

240 Philo Bldg., Elmira, N. Y.

## QUEENS---GOLDEN OR THREE-BANDED

Until July 15 I will furnish untested Italian Queens at the following prices: One, \$1.50; six, \$8.00; dozen, \$15.00. Safe arrival and satisfaction guaranteed. I do not ship any queens that are inferior in size, color, or prolificness. Mating yards four miles apart. (See classified adv. for package bees.)

**Ross B. Scott, La Grange, Ind.**



**RHODES DOUBLE CUT  
PRUNING SHEAR**

*Patented*

**RHODES**

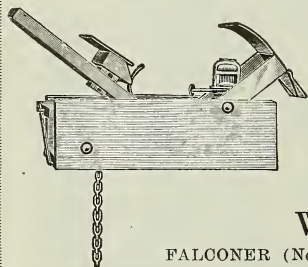
**RHODES MFG. CO.,**  
528 S. DIVISION AVE., GRAND RAPIDS, MICH.

**THE** only  
pruner  
made that cuts  
from both sides of  
the limb and does not  
bruise the bark. Made in  
all styles and sizes. All  
shears delivered free  
to your door.

Write for  
circular and  
prices.

## EARLY ORDERS BRING SAVINGS

**N**ATURALLY we want your order for bee supplies NOW, when we can give it better attention. Spring will soon be here, with its usual rush for supplies. So we offer an early-order discount to beekeepers who buy NOW. Write today for our red catalog.



We are exclusive manufacturers of the  
**DEWEY FOUNDATION FASTENER.**

Many exacting beemen claim it is the best machine yet devised. Overcomes objections common to all others. Include the DEWEY in your order.



**W. T. FALCONER MFG. CO.**

FALCONER (Near Jamestown), N. Y.

*"Where the best beehives come from."*

## Honey Producers, Take Notice

Do you realize it is only a short time until your bees will be taken out of winter quarters? Have you thought about supplies for next season? Do not wait until swarming time for that means dollars out of your pocket. Order your supplies NOW.

We manufacture and carry in stock a complete line of Bee Supplies ready for prompt shipment. Send us a list of the supplies you wish to purchase and we will be pleased to quote you our prices. Our 1921 descriptive catalog and price list is now ready for mailing. Send us your name and address and we will mail it to you.

**August Lotz Company, Boyd, Wisconsin**



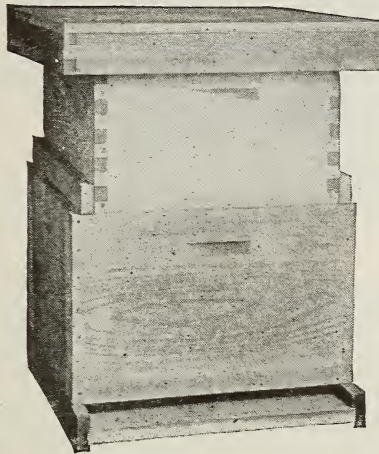
Your present brood equipment can be put above the Modified Dadant hive used as full depth supers.

Features are: Deep frames, large one-story brood nest, frame space ventilation, excellence in wintering, swarming easily controlled.

Glance at this illustration to compare this hive with "Standard" Langstroth hive.

You can get 40 per cent greater brood-comb area than in the "Standard" ten-frame Langstroth.

## Modified Dadant Hive



### Modified Dadant Hive Features.

1. Eleven frames, Langstroth length, Quinby depth.
2. Frames spaced  $1\frac{1}{2}$  inches for swarm control.
3. Extracting frames  $6\frac{1}{4}$  inches deep.
4. Dovetailed body, regular reversible bottom and metal roof cover with inner cover.
5. Langstroth "Standard" equipment easily used with this hive.

For free booklet write any distributor of Lewis "Beeware," or to

G. B. Lewis Company - - - - - Watertown, Wisconsin  
Dadant & Sons - - - - - Hamilton, Illinois

## Those delicious vegetables

and glorious flowers that you admired last summer—do you realize that many were grown from Storrs & Harrison seeds?

Perhaps you have thought of us only as nurserymen, knowing that we do the largest nursery business in the country. Our nursery trade was built up by holding the friendship of planters who know they may depend absolutely that any variety we offer has outstanding merit, and

**S & H SEEDS DESERVE YOUR CONFIDENCE JUST AS FULLY AS THE SPLENDID TREES, SHRUBS, PERENNIALS AND ORNAMENTALS THAT WE HAVE BEEN PRODUCING THESE LAST 67 YEARS.**

*Our catalog is a worthy helper for the professional grower and the amateur who appreciate the better varieties.*

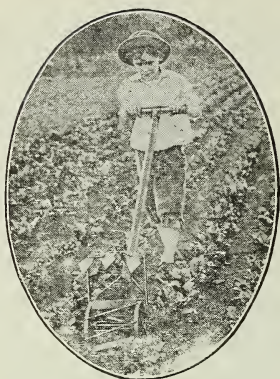
## The Storrs & Harrison Co.

Nurserymen and Seedsmen

BOX 59.

PAINESVILLE, OHIO.





## Completely Destroys the Weed Growth

More than that, the BARKER breaks the hardest crust into a level, porous, moisture-retaining mulch—all in the same operation.

A ten-year-old boy can run it—do more and better work than ten men with hoes. Saves time and labor, the two big expense items.

### BARKER WEEDER, MULCHER AND CULTIVATOR

Eight reel blades revolve against a stationary underground knife — like a lawn mower. Best Weed Killer Ever Used." Works right up to plants. Cuts runners. Aerates the soil. Has leaf guards, and shovels for deeper cultivation—3 garden tools in 1.

#### FREE ILLUSTRATED BOOK.

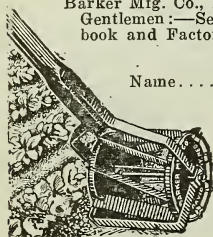
Tells how gardeners and fruit-growers everywhere are reducing their work; increasing their yields.—How to bring growing plants through a dry season.—How to conserve the moisture and force a larger, more rapid growth. Send TODAY for this free, illustrated book and special Factory-to-User offer.

### BARKER MANUFACTURING COMPANY

Dept. 23.

David City, Neb.

Barker Mfg. Co., Dept. 23, David City, Neb.  
Gentlemen:—Send me postpaid your free book and Factory-to-User offer.



Name.....

Town.....

State.....

R. F. D. or Box.....

## Two Thousand Nuclei For Spring Delivery

A great many progressive beekeepers of today buy nuclei to make up winter losses, or in the form of pound packages to strengthen weak colonies. We know this is a good investment, and for a good many years have raised bees in the South, sending them north to catch the honey flow in July and August. It is our policy, in furnishing our customers with bees from our southern apiaries, to furnish bees that give satisfaction to you, as they have to us for the past ten years. We are very particular as to the strain of bees we keep, and the rearing of our queens is in the hands of an expert.

We maintain that the queen is the life of the colony, and they are reared under the most favorable conditions, that of natural swarming, and they are fine large ones with energy to spare, and as good as money can buy. However, we do not sell queens, but we see that a good queen goes with every nucleus we sell. We guarantee you safety against disease, as our bees are inspected constantly, and our apiaries closely watched to see that no disease appears. Our prices as follows:

	April	May	June
1-frame nucleus	\$4.00	\$3.50	\$3.00
2-frame nucleus	5.50	5.00	4.50
3-frame nucleus	7.00	6.50	6.00
4-frame nucleus	9.00	8.50	8.00
Full colonies of bees, \$12.00 per colony			

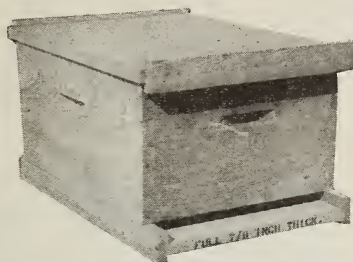
1-pound package	\$2.50
2-pound package	4.50
3-pound package	6.50

For packages with queens add \$1.50 for each package.

**WEBER BROS.  
HONEY CO.  
RIALTO, CALIFORNIA**



Made right.



Priced under favorable manufacturing conditions.

# Cypress Bee Supplies

On account of being in the cypress belt and having extremely low operating expenses we are able to offer you the supplies made of the finest soft cypress obtainable, which is almost as soft and light as white pine.

Hives are standard dimensions, dovetailed, hand holds on all four sides, supplied with rabbets, nails, and Hoffman frames. Prices include cover, bottom, body, and frames.

A full line of Root's supplies and Aircor Foundation kept in stock. Let us quote you on your 1921 requirements in either Root's or our goods.

8-frame 1-story hives complete in lots of 5.....\$14.75

10-frame 1-story hives complete in lots of 5..... 16.00

Above supplied with Root-Hoffman frames at \$1.50 extra for 5 8-frame, and \$1.85 for 5 10-frame.

## Hive Bodies.

Eight-frame .....\$0.95 each

Ten-frame ..... 1.05 each

Bottom-boards are made of  $\frac{7}{8}$ -inch lumber throughout. Floor is tongued and grooved together, reversible, of standard dimensions and construction.

Price:

8-frame in lots of 5.....\$0.75

10-frame in lots of 5..... .80

## Prices of Bees.

Untested queens: 1, \$2.00; 12 or more, 1.50 each. Tested queens, \$3.00.

1-lb. package without queen.....\$4.00

2-lb. package without queen..... 6.75

2-frame nuclei ..... 7.00

8-frame colony ..... 20.00

10-frame colony ..... 22.00

1 carload bees in 8-frame cypress hives for shipment in spring from Helena, Ga., at \$12.50 each.

## Covers.

All covers are flat and reversible. Both one and two piece are the same in every respect, except the one-piece is made from wide clear boards and the two-piece is joined with metal. Cypress covers do not warp.

8-frame two-piece .....\$0.70

10-frame two-piece ..... .75

8-frame one-piece ..... .85

10-frame one-piece ..... 1.00

Absolutely the best cover made.

Fresh stock foundation shipped from factory direct to you at wholesale prices in lots of 50 pounds or more.

SEND FOR CATALOGUE.

# The Stover Apiaries

Helena, Ga.

Mayhew, Miss.

Yes, it is now winter, but spring will soon be here. Have you everything on hand that you will need?

Have you veils, smokers, hive-tools, and other appliances?

Have you hives, supers, sections, foundation, extractors, and other supplies? Now is the time to send us your order. If you are wise you will do so.

# Order Now It Will Pay You

**F. A. SALISBURY**  
1631 West Genesee Street  
Syracuse, New York

Send for our new catalog.

Order now, and be ready for the bees. Why wait until the last moment when everyone is sending in their orders, and we cannot give you our best attention? Send in your order now. We will give you our best attention.

Send in your order to us here in

We Satisfy  
Your  
Requirements  
And you can  
Count  
Us prepared for  
Service  
Every time.



# THE AULT 1921 BEE SHIPPING CAGE



## Patent Pending

1st. It is a dark cage, much more so than the open screen cages we have been shipping in in the past.

2nd. The feeder uses pure sugar syrup. Better than Honey or Candy to ship on; it contains water as well as feed.

3rd. Feeders are made more substantial, 1-3 larger, and have screw cap that will not jar out.

4th. Instead of one small hole, we now use a cotton duck washer in the screw cap that has proven to overcome all the objections found to the liquid feed method.

5th. The Cage is one piece screen wire protected by thin boards on the outside. Send for free circular describing the cage in detail, prices, etc.

## Queens—Package Bees—Queens

Will book your order with 20 per cent down, balance just before shipping. My Free Circular gives prices in detail, etc. Safe delivery Guaranteed within 6 days of shipping point. We ship thousands of pounds all over U. S. A. and Canada.

1-pound package bees, \$3.00 each; 25 or more \$2.85 each.

2-pound package bees, \$5.00 each; 25 or more \$4.75 each.

3-pound package bees, \$7.00 each; 25 or more \$6.65 each.

F. O. B. Shipping Point. Add price of queen wanted.

1 Untested Queen, \$2.00 each; 25 or more, \$1.75 each

1 Select Unt. Queen, \$2.25 each; 25 or more, \$2.00 each

1 Tested Queen, \$3.00 each; 25 or more, \$2.70 each

1 Select Tested, \$3.50 each; 25 or more, \$3.00 each

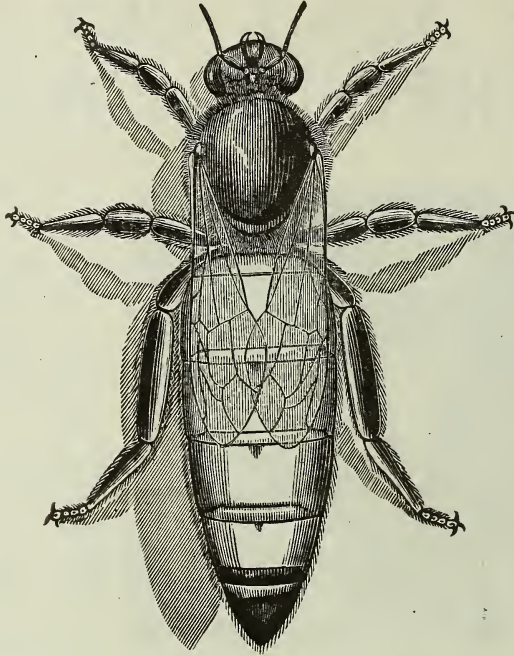
## Nueces County Apiaries

E. B. AULT, Prop.

--:--

Calallen, Texas

My first peep out on the dawn of a new year.



Highest Quality      Prompt Service      Satisfaction

## The Reliable Three - Banded Italian Queens

We are now booking orders for 1921. Queens will be ready after May 15th, one-fourth down, balance just before shipping date. Place your orders early, as we fill orders in rotation.

### WHY ORDER FARMER QUEENS?

They are bred by as skillful and experienced queen-breeders as can be found in the United States. There are very few places where queens are reared under as favorable conditions as in our queen-rearing yards. We devote our time to rearing as good queens as possibly can be, and we positively guarantee that no better can be reared; we spare neither labor nor money in developing our strain of Italians. It is our intention to improve our original stock each year and to be more skillful queen-breeders. Our first original stock was procured from the highest quality obtainable, which we have proved to the highest point and is now not surpassed by any. Our own eyes inspect every queen that leaves our yards; no culls sent out. Place your orders, and after you have given our queens a fair test and you are not satisfied in every way that they are as good as any you have ever used, just return them and we will send you queens to take their places or return your money. They are very resistant to diseases, the very best for honey-gathering. You take no risk in buying our queens; safe arrival in U. S. A. and Canada; satisfaction is left entirely to purchaser; prompt service given to all orders; every queen guaranteed to be purely mated.

Our Prices:	1	6	12	100
Untested .....	\$1.50	\$ 8.00	\$15.00	\$100.00
Select Untested .....	1.75	9.50	17.00	120.00
Tested .....	3.00	14.75	25.00	
Select Tested .....	4.00	23.00	42.00	

Write for prices on larger quantities than 100.

## The Farmer Apiaries - - - Ramer, Alabama

Where the good queens come from.



# "The Question of Supplies."

(A paper read by C. F. Bender of Newman, Ill., at the recent meeting of the Illinois State Beekeepers' Convention, and printed in the American Bee Journal for January, 1921.)

Having been called upon for a paper to be read before this convention, it seemed to me that a full discussion of this subject from the beekeeper's standpoint might be of interest. I wish to assure you at the outset, that I am in no way interested in the sale of bee supplies, but view the matter solely as a purchaser. Having decided upon my own policy with regard to the purchase of supplies for the coming season, it may be useful to give you the facts and fancies on which that decision is based.

I have just returned from a month's vacation in which I visited some of the largest supply factories, making a leisurely visit at each, with a view to learning present conditions, as well as future prospects. I will confess that I went as a missionary to these benighted brethren, saying: Lo, the poor bee man! How is he to pay war prices for his supplies, and take a chance on selling his honey next fall?

I was surprised to find that they were already true believers. They knew all that I had to tell, and much more. Instead of darkly plotting how they were to keep up the prices of supplies, they were anxiously and even prayerfully considering how these prices might be reduced. They told me that the factories must be run through the winter, if the demand next summer is to be supplied; that if they are run through this winter, materials and labor must be purchased at prices that average less than 10 per cent below the highest war prices. Coal and iron, lumber, beeswax, labor, were still selling at astonishing prices. Freight rates on those materials were higher than ever before. Taxes were a burden, interest on borrowed capital unusually high, and in many cases borrowed money was not to be had at any price. Considering all these things, it would be folly to store a large stock of supplies, in the hope of selling them next summer. The only course left was to run the factories short-handed, storing only such a stock as would certainly be sold, at nearly the present

level of prices. This in the hope, not of making a large profit, but of avoiding a heavy loss.

It seems to me that our problem, while apparently the same as that of the manufacturers, is really different, because the labor employed is largely our own. Unless we are to abandon our business entirely, it will not profit us to limit the production of honey because our supplies cost us twenty per cent more than they will probably cost us a year later. It will not even pay us to limit increases on account of the high prices of hives, because the net profit per colony for one season will more than cover any probable reduction in the price of hives during that year.

If these statements are accepted as facts, there only remains for us one possible question. Shall we buy our supplies now, so far as we can foresee our needs, or shall we wait until spring or summer, in the hope of getting them cheaper? In my mind that question, also, is easily answered. I have tried to show you that the factories and dealers are carrying only small stocks, and that a normal demand during the busy season cannot be supplied. Consequently, if we wait until the last moment, there is danger, not only that we shall be obliged to pay higher prices, but that we shall not get our supplies at all.

Our only consolations are, that we have used some low-priced supplies in the production of high-priced honey—that, as we have gone up with the commercial balloon, we must come down as it cools off, as other producers are doing, and must content ourselves with reduced profits, hoping for better times in the years to come.

My prediction is that the lowest prices for supplies during the year will be those quoted in the January catalogs. Acting on that belief, I have already ordered my supplies for the next season and expect to do business at the old stand, in quite the usual manner, in 1921.

## The A. I. Root Company

Medina, Ohio.

# Why Buy Now?

Winter is the time to make up your hives, supers, and supplies for the spring. Prospects are good. Bees are in good shape, clover looks promising. Be prepared.

**CONGESTED DEMAND** in spring, owing to a hesitancy of many to order will be apt to cause the extra delays in the busy spring months. Get your order in ahead of the rush.

**3 PER CENT DISCOUNT** in February makes buying early advantageous.

**SLOW FREIGHTS** are apt to delay your material and may result in goods arriving too late unless ordered early.

## Why Buy of Us?

**REPUTABLE GOODS.** We handle only such goods as we can absolutely recommend as first class, perfect fitting, perfect using.

**PROMPT SHIPMENT.** We carry always a large stock of goods and pride ourselves on the promptness with which we can get out orders for our customers. Delays in transit are largely obviated by rushing tracers after the goods on request of the customer.

**SATISFACTION GUARANTEED.** We guarantee absolutely that our goods will be satisfactory in material and workmanship. In fact we guarantee satisfaction in every way.

**Write giving list of your requirements. We will give you our lowest cash price.**

**DADANT'S FOUNDATION**—Every inch, every pound, every ton equal to any sample we have ever sent out. Specify it to your dealer. If he hasn't it write us,

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Hamilton, Illinois

Catalog and Prices on Bee Supplies, Beeswax, Wax Working into Comb Foundation and Comb Rendering for the asking.